HARRY HERSBACH TOOLS BV

specialist in machining tools

2024

COMBIDEX®

solid solutions to improve your business

TMS, TMI, TMSH HARDCUT, TMD & TMDH

SOLID CARBIDE THREAD MILL- MINI

THREADING | MILLING | THREAD MILLING | TURNING | DRILLING | GROOVING & PARTING

Combidex
Trademark of Harry Hersbach Tools BV

Nieuwe Waterwegstraat 5
3115 HE Schiedam

+31 (0) 10 204 06 80
www.hhtools.nl
info@hhtools.nl

INDEX TMS, TMI, TMSH HARDCUT, TMD & TMDH SOLID CARBIDE THREAD MILL- MINI

1 TMS & TMI

2 TMSH & TMH

3 TMD & TMDH

TMS & TMI

1.1 TMS & TMI | Information

MINI THREAD-MILL TMS

Combidex Mini Thread-Mill TMS

TMS

- Threading from ISO M1 x 0.25 and 0-80UN.
- Working in high cutting speed.
- Short machining time.
- Low cutting forces thanks to the short profile.
- No broken taps.
- Machining of hardened materials up to 45 HRc.

Advantages

- Enables machining in deep holes.
- Same tool can produce a wide range of threads and pitches.
- Same tool can produce both External and Internal threads.
- Coolant through the flutes is very effective for deep holes.
- Spiral flutes allow smooth cutting action.
- Shorter machining time due to multi (3 to 5) flutes.
- Longer tool life due to special triple coating.

Carbide grade: FXFL7

Sub-Micron grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20).
To be run at medium to high cutting speeds. General purpose for all materials.

TMI - For threading deep parts

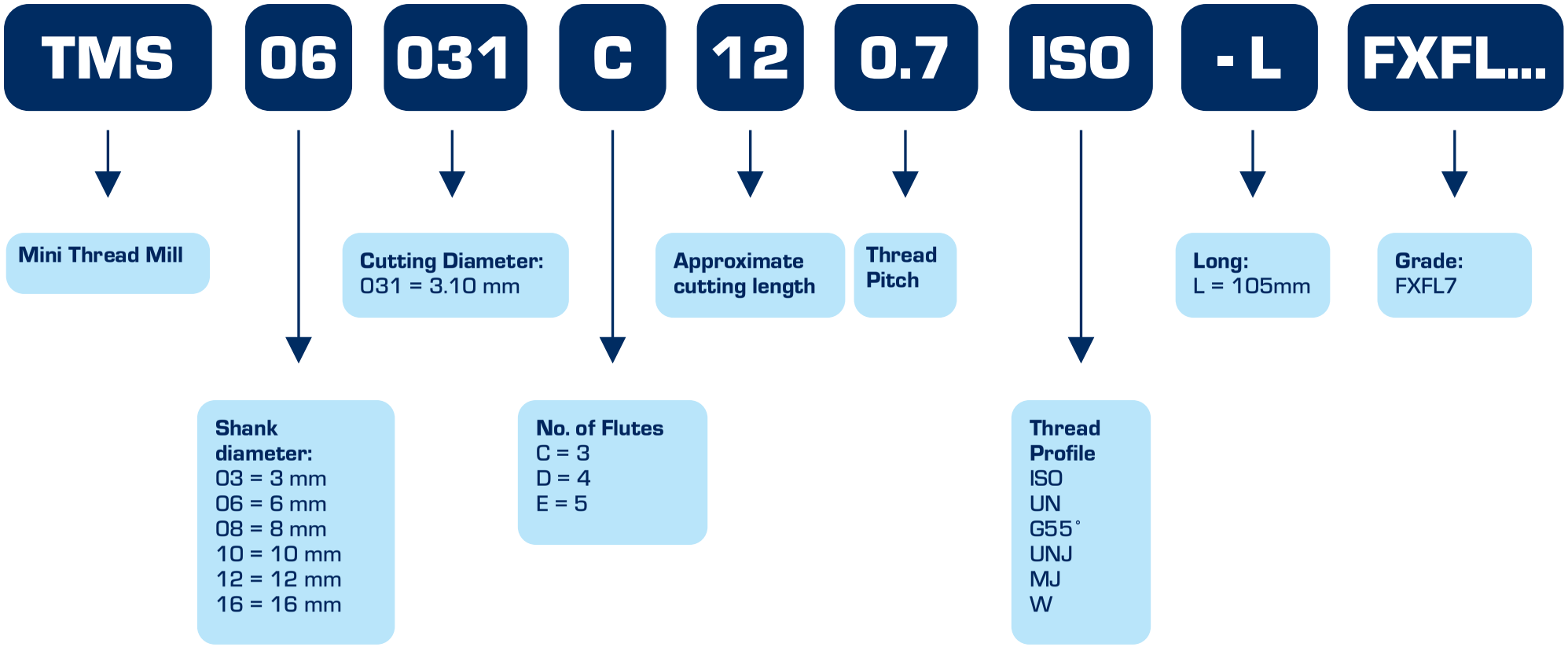
Carbide grade: FXFL8

Sub-micron grade with advanced PVD triple layer coating (ISO K10-K20).
Extremely high heat resistant and smooth cutting operation, for high performance, and normal machining conditions.
General purpose for all materials.

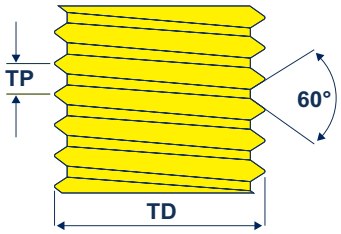
Carbide grade: FXFL11

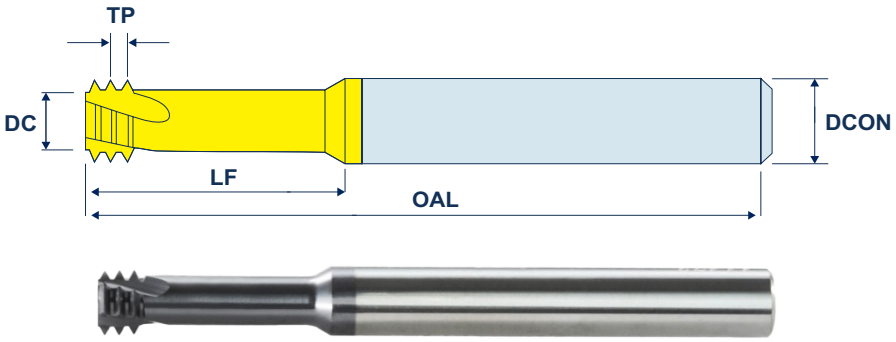
Ultra-fine Sub-micron grade with advanced PVD triple layer coating

1.2 TMS | Ordering codes



1.3 TMS | ISO 60°





Grade	P	M	K	N	S	H
FXFL7	●	○	●	●	●	≤45 HRc

ISO 60°

Pitch mm	M Coarse	M Fine	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
0.25	M1, M1.1		TMS 03007 C2 0.25 ISO	3	0.72	3	2.5	39	2.5xD1
0.25	M1.2	M1.4	TMS 03009 C3 0.25 ISO	3	0.90	3	3.0	39	2xD1
0.3	M1.4		TMS 03011 C4 0.3 ISO	3	1.05	3	4.0	39	3xD1
0.35	M1.6,M1.8	M2, M2.5	TMS 03012 C5 0.35 ISO	3	1.20	3	4.8	39	3xD1
0.35	M1.6,M1.8	M2, M2.5	TMS 06012 C5 0.35 ISO-L	6	1.20	3	4.8	105	3xD1
0.35		M5, M6	TMS 06045 D14 0.35 ISO	6	4.50	4	14.5	58	3xD1
0.4	M2		TMS 06016 C4 0.4 ISO	6	1.53	3	4.5	58	2xD1
0.4	M2		TMS 06016 C4 0.4 ISO-L	6	1.53	3	4.5	105	2xD1
0.4	M2		TMS 03016 C6 0.4 ISO	3	1.53	3	6.0	39	3xD1
0.4	M2		TMS 03016 C10 0.4 ISO	3	1.53	3	10.4	39	5xD1
0.45	M2.2		TMS 06017 C5 0.45 ISO	6	1.65	3	5.0	58	2xD1
0.45	M2.2		TMS 03017 C7 0.45 ISO	3	1.65	3	7.0	39	3xD1
0.45	M2.5		TMS 0602 C5 0.45 ISO	6	1.95	3	5.5	58	2xD1
0.45	M2.5		TMS 0602 C5 0.45 ISO-L	6	1.95	3	5.5	105	2xD1
0.45	M2.5		TMS 0602 C7 0.45 ISO	6	1.95	3	7.5	58	3xD1
0.45	M2.5		TMS 0602 C8 0.45 ISO-L	6	1.95	3	8.0	105	3xD1
0.45	M2.5		TMS 0302 C10 0.45 ISO	3	1.95	3	10.5	39	4xD1
0.5	M3		TMS 06024 C6 0.5 ISO	6	2.37	3	6.5	58	2xD1
0.5	M3		TMS 06024 C6 0.5 ISO-L	6	2.37	3	6.5	105	2xD1
0.5	M3		TMS 06024 C9 0.5 ISO	6	2.37	3	9.5	58	3xD1
0.5	M3		TMS 06024 C9 0.5 ISO-L	6	2.37	3	9.5	105	3xD1
0.5	M3		TMS 03024 C12 0.5 ISO	3	2.40	3	12.5	39	4xD1
0.5	M3		TMS 03024 C15 0.5 ISO	3	2.40	3	15.5	39	5xD1
0.5		M4, M5	TMS 06034 D8 0.5 ISO	6	3.40	4	8.5	58	2xD1
0.5		M4, M5	TMS 06034 D12 0.5 ISO	6	3.40	4	12.5	58	3xD1
0.5		M6, M7	TMS 06054 D20 0.5 ISO	6	5.35	4	20.0	58	3xD1
0.6	M3.5		TMS 06028 C7 0.6 ISO	6	2.75	3	7.5	58	2xD1
0.6	M3.5		TMS 06028 C10 0.6 ISO	6	2.75	3	10.5	58	3xD1
0.7	M4		TMS 06031 C9 0.7 ISO	6	3.10	3	9.0	58	2xD1
0.7	M4		TMS 06031 C12 0.7 ISO	6	3.10	3	12.5	58	3xD1
0.7	M4		TMS 06031 C12 0.7 ISO-L	6	3.10	3	12.5	105	3xD1
0.7	M4		TMS 06031 C16 0.7 ISO	6	3.10	3	16.7	58	4xD1
0.75	M4.5	M5	TMS 06034 C9 0.75 ISO	6	3.40	3	9.8	58	2xD1
0.75		M6	TMS 06049 D12 0.75 ISO	6	4.90	4	12.8	58	2xD1
0.75		M10, M12	TMS 0808 D25 0.75 ISO	8	8.00	4	25.0	64	2.5xD1
0.8	M5		TMS 06038 C12 0.8 ISO	6	3.80	3	12.5	58	2xD1
0.8	M5		TMS 06038 C16 0.8 ISO	6	3.80	3	16.0	58	3xD1
0.8	M5		TMS 06038 C16 0.8 ISO-L	6	3.80	3	16.0	105	3xD1
0.8	M5		TMS 0604 C20 0.8 ISO	6	4.00	3	20.8	58	4xD1

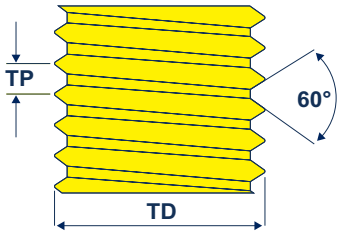
continue →

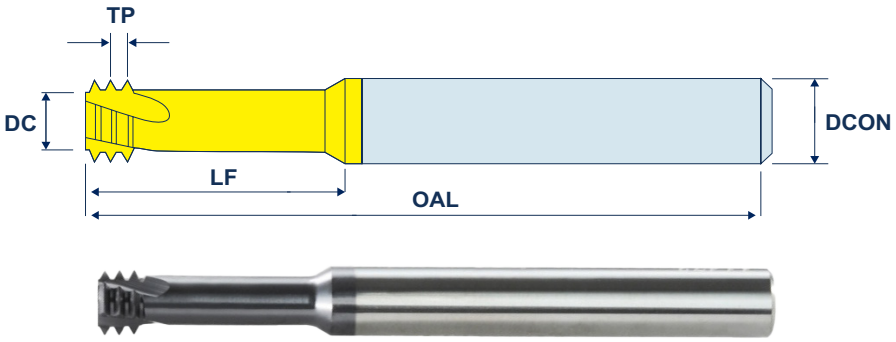
Pitch mm	M Coarse	M Fine	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
1.0	M6	M8	TMS 06047 C14 1.0 ISO	6	4.65	3	14.0	58	2xD1
1.0	M6	M8	TMS 06047 C20 1.0 ISO	6	4.65	3	20.0	58	3xD1
1.0	M6	M8	TMS 06047 C20 1.0 ISO-L	6	4.65	3	20.0	105	3xD1
1.0	M6	M8	TMS 06048 C25 1.0 ISO	6	4.65	3	25.0	58	4xD1
1.0		M10, M12	TMS 0808 D31 1.0 ISO	8	8.00	4	31.0	64	3xD1
1.25	M8	M10, M12	TMS 0606 C18 1.25 ISO	6	6.00	3	18.0	58	2xD1
1.25	M8	M10, M12	TMS 0606 C24 1.25 ISO	6	6.00	3	24.0	58	3xD1
1.25	M8	M10, M12	TMS 0606 C24 1.25 ISO-L	6	6.00	3	24.0	105	3xD1
1.25	M8	M10, M12	TMS 08064 C33 1.25 ISO	8	6.40	3	33.5	64	4xD1
1.5	M10	M14, M16	TMS 08078 C23 1.5 ISO	8	7.80	3	23.0	64	2xD1
1.5	M10	M14, M16	TMS 08078 C31 1.5 ISO	8	7.80	3	31.5	64	3xD1
1.5	M10	M14, M16	TMS 08078 C31 1.5 ISO-L	8	7.80	3	31.5	105	3xD1
1.5	M10	M14, M16	TMS 0808 C41 1.5 ISO	8	8.00	3	41.5	76	4xD1
1.75	M12		TMS 1009 C26 1.75 ISO	10	9.00	3	26.0	73	2xD1
1.75	M12		TMS 1009 C37 1.75 ISO	10	9.00	3	37.8	73	3xD1
2.0	M14	M17	TMS 1010 D30 2.0 ISO	10	10.00	4	30.0	73	2xD1
2.0	M16	M18, M20	TMS 12118 D35 2.0 ISO	12	11.80	4	35.0	84	2xD1
2.0	M16	M18, M20	TMS 12118 D50 2.0 ISO	12	11.80	4	50.0	105	3xD1
2.5	M20		TMS 1615 E43 2.5 ISO	16	15.00	5	43.0	105	2xD1

Order example: TMS 1615 E43 2.5 ISO FXFL7

- Machining Titanium, surgical stainless steels and hardened materials up to 45 HRc.
- Suitable for high speed air turbine machines (30,000-40,000 RPM) and for standard machining centers (6,000 RPM and higher).

1.4 TMS | UN





Grade	P	M	K	N	S	H
FXFL7	●	○	●	●	●	≤45 HRc

UN

Pitch TPI	UNC	UNF	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
80		0	TMS 06012 C4 80 UN	6	1.15	3	4.0	58	3XD1
80		0	TMS 03012 C8 80 UN	3	1.15	3	8.0	39	5XD1
72		1	TMS 06014 C3 72 UN	6	1.45	3	3.7	58	2XD1
72		1	TMS 03015 C6 72 UN	3	1.45	3	6.0	39	3xD1
64	1	2	TMS 06014 C3 64 UN	6	1.40	3	3.8	58	2xD1
56	2	3	TMS 03016 C4 56 UN	3	1.65	3	4.4	39	2xD1
56	2	3	TMS 06016 C4 56 UN	6	1.65	3	4.4	58	2xD1
56	2	3	TMS 03016 C6 56 UN	3	1.65	3	6.6	39	3xD1
56	2	3	TMS 06016 C6 56 UN	6	1.65	3	6.6	58	3xD1
56	2	3	TMS 06016 C6 56 UN-L	6	1.65	3	6.6	105	3xD1
56	2	3	TMS 03016 C9 56 UN	3	1.65	3	9.2	39	4xD1
56	2	3	TMS 03016 C11 56 UN	3	1.65	3	11.4	39	5xD1
48	3	4	TMS 06019 C5 48 UN	6	1.90	3	5.2	58	2xD1
40	4		TMS 06021 C6 40 UN	6	2.10	3	6.3	58	2xD1
40	4		TMS 06021 C6 40 UN-L	6	2.10	3	6.3	105	2xD1
40	4		TMS 03021 C8 40 UN	3	2.10	3	8.0	39	3xD1
40	4		TMS 06021 C8 40 UN	6	2.10	3	8.0	58	3xD1
40	4		TMS 06021 C8 40 UN-L	6	2.10	3	8.0	105	3xD1
40	4		TMS 03021 C12 40 UN	3	2.10	3	12.0	39	4xD1
40	5	6	TMS 06024 C7 40 UN	6	2.45	3	7.0	58	2xD1
40	5	6	TMS 06024 C9 40 UN	6	2.45	3	9.6	58	3xD1
36		8	TMS 06033 C9 36 UN	6	3.30	3	9.0	58	2xD1
32	6		TMS 06025 C7 32 UN	6	2.55	3	7.1	58	2xD1
32	6		TMS 06025 C7 32 UN-L	6	2.55	3	7.1	105	2xD1
32	6		TMS 03025 C10 32 UN	3	2.55	3	10.5	39	3xD1
32	6		TMS 06025 C10 32 UN	6	2.55	3	10.5	58	3xD1
32	6		TMS 06025 C10 32 UN-L	6	2.55	3	10.5	105	3xD1
32	6		TMS 03025 C14 32 UN	3	2.55	3	14.8	39	4xD1
32	8		TMS 06032 C9 32 UN	6	3.20	3	9.5	58	2xD1
32	8		TMS 06032 C9 32 UN-L	6	3.20	3	9.5	105	2xD1
32	8		TMS 06032 C12 32 UN	6	3.20	3	12.5	58	3xD1
32	8		TMS 06032 C12 32 UN-L	6	3.20	3	12.5	105	3xD1
32	8		TMS 06032 C17 32 UN	6	3.20	3	17.5	58	4xD1
32		10	TMS 06037 C10 32 UN	6	3.70	3	10.5	58	2xD1
32		10	TMS 06037 C15 32 UN	6	3.70	3	15.0	58	3xD1
32		10	TMS 06037 C15 32 UN-L	6	3.70	3	15.0	105	3xD1
32		10	TMS 06037 C20 32 UN	6	3.70	3	20.0	58	4xD1

continue →

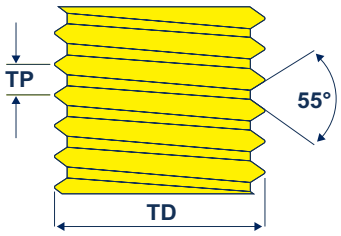
Pitch TPI	UNC	UNF	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
28		1/4	TMS 0605 C14 28 UN	6	5.00	3	14.5	58	2xD1
28		1/4	TMS 0605 C19 28 UN	6	5.00	3	19.0	58	3xD1
28		1/4	TMS 0605 C19 28 UN-L	6	5.00	3	19.0	105	3xD1
24	10,12		TMS 06035 C10 24 UN	6	3.50	3	10.6	58	2xD1
24	10,12		TMS 06035 C15 24 UN	6	3.50	3	15.5	58	3xD1
24	10,12		TMS 06035 C15 24 UN-L	6	3.50	3	15.5	105	3xD1
24		5/16, 3/8	TMS 08066 C17 24 UN	8	6.60	3	17.0	64	2xD1
24		5/16, 3/8	TMS 08066 C24 24 UN	8	6.60	3	24.0	64	3xD1
20	1/4		TMS 06047 C14 20 UN	6	4.75	3	14.0	58	2xD1
20	1/4		TMS 06047 C14 20 UN-L	6	4.75	3	14.0	105	2xD1
20	1/4		TMS 06047 C19 20 UN	6	4.75	3	19.0	58	3xD1
20	1/4		TMS 06047 C19 20 UN-L	6	4.75	3	19.0	105	3xD1
20		7/16	TMS 0808 C25 20 UN	8	8.00	3	25.0	64	2xD1
20		7/16	TMS 0808 C34 20 UN	8	8.00	3	34.6	64	3xD1
18	5/16		TMS 0606 C17 18 UN	6	6.00	3	17.0	58	2xD1
18	5/16		TMS 0606 C23 18 UN	6	6.00	3	23.0	58	3xD1
18		5/8	TMS 1212 D35 18 UN	12	12.00	4	35.0	84	2xD1
18		5/8	TMS 1212 D49 18 UN	12	12.00	4	49.0	105	3xD1
16	3/8		TMS 08067 C22 16 UN	8	6.70	3	22.0	64	2xD1
16	3/8		TMS 08067 C30 16 UN	8	6.70	3	30.2	64	3xD1
14	7/16		TMS 08077 C25 14 UN	8	7.70	3	25.0	64	2xD1
14	7/16		TMS 08077 C35 14 UN	8	7.70	3	35.2	64	3xD1
13	1/2		TMS 10092 C27 13 UN	10	9.20	3	27.5	73	2xD1
13	1/2		TMS 10092 C40 13 UN	10	9.20	3	40.1	73	3xD1
12	9/16		TMS 12105 C31 12 UN	12	10.50	3	31.5	84	2xD1
12	9/16		TMS 12105 C45 12 UN	12	10.50	3	45.0	105	3xD1
11	5/8		TMS 12114 C34 11 UN	12	11.40	3	34.5	84	2xD1
11	5/8		TMS 12114 C50 11 UN	12	11.40	3	50.0	105	3xD1
10	3/4		TMS 16144 D41 10 UN	16	14.40	4	41.5	105	2xD1
10	3/4		TMS 16144 D59 10 UN	16	14.40	4	59.7	105	3xD1

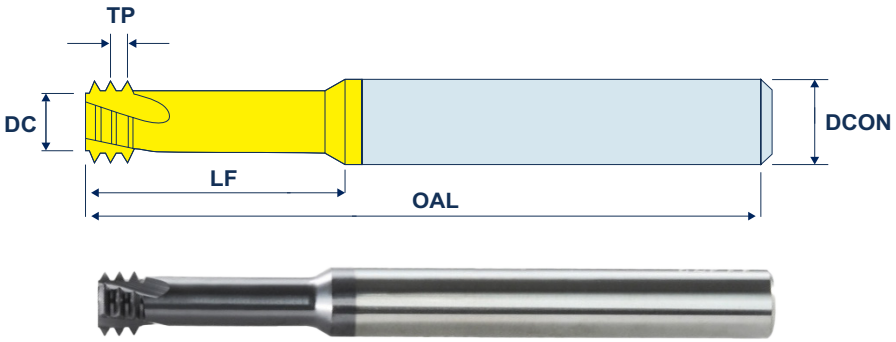
Order example: TMS 0605 C19 28 UN FXFL7

- Machining Titanium, surgical stainless steels and hardened materials up to 45 HRc.
- Suitable for high speed air turbine machines (30,000-40,000 RPM) and for standard machining centers (6,000 RPM and higher).
- Can also be used for general purpose threading.

1.5 TMS | G55°

BSW, BSP - Same Tool for Internal and External Thread
For thread depth up to 2 x D1





Grade	P	M	K	N	S	H
FXFL7	●	○	●	●	●	≤45 HRc

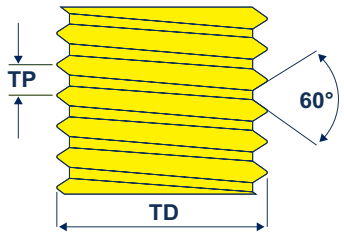
G55°

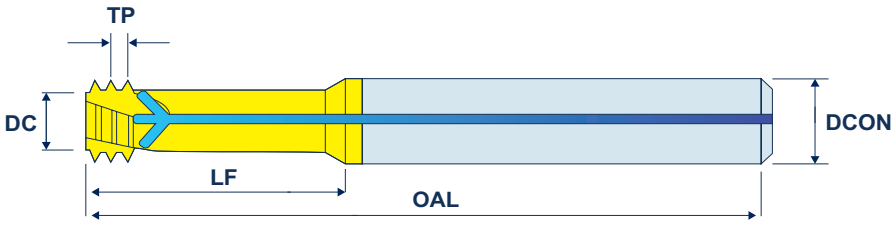
Pitch TPI	Standard	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
28	G 1/8	TMS 08078 C19 28 W	8	7.8	3	19.5	64	2xD1
19	G 1/4 - 3/8	TMS 1010 D30 19 W	10	10.0	4	30.0	73	2xD1
14	G 1/2 - 7/8	TMS 1212 D37 14 W	12	12.0	4	37.0	84	2xD1
11	G ≥ 1	TMS 1616 D44 11 W	16	16.0	4	44.0	105	2xD1

Order example: TMS 0605 C19 28 UN FXFL7

1.6 TMS | UNJ

With internal coolant through the flutes
Tools for Internal Thread For thread depth up to 2.5 x D1





Grade	P	M	K	N	S	H
FXFL8	●	○	●	●	●	≤52 HRc

UNJ

Pitch TPI	UNJC	UNJF	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
*32	6		*TMS 06025 C7 32 UNJ	6	2.55	3	7.1	58	2.5xD1
*32	8	10	*TMS 06033 C10 32 UNJ	6	3.30	3	10.5	58	2.5xD1
28		1/4	TMS 08051 C16 28 UNJ	8	5.10	3	16.0	64	2.5xD1
24		5/16, 3/8	TMS 08067 C20 24 UNJ	8	6.70	3	20.0	64	2.5xD1
*20	1/4		*TMS 06049 C16 20 UNJ	6	4.90	3	16.0	58	2.5xD1
20		7/16	TMS 0808 C28 20 UNJ	8	8.00	3	28.0	64	2.5xD1
18	5/16	9/16	TMS 08061 C20 18 UNJ	8	6.15	3	20.0	64	2.5xD1
16	3/8		TMS 08069 C24 16 UNJ	8	6.90	3	24.0	64	2.5xD1
14	7/16		TMS 08079 C25 14 UNJ	8	7.90	3	25.0	64	2.5xD1
13	1/2		TMS 10094 C27 13 UNJ	10	9.40	3	27.5	73	2.5xD1

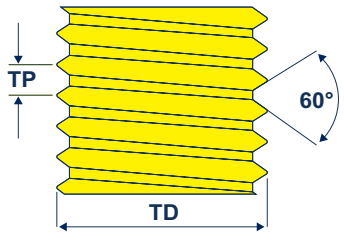
*Cutters without coolant

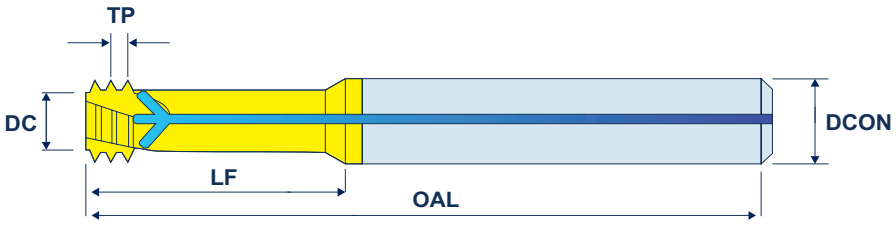
Order example: TMS 06049 C16 20 UNJ FXFL8

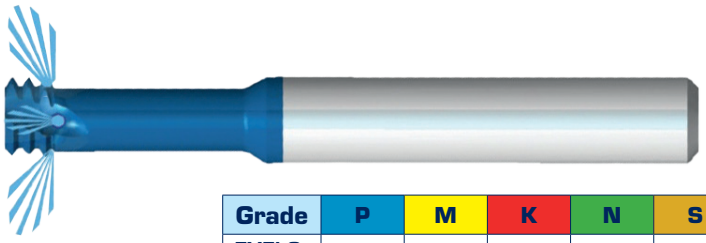
Carbide grade FXFL8
Sub Micron grade with advanced PVD triple layer coating (ISO K 10-K20).
Extremely high heat resistant and smooth cutting operation, for high performance, and normal machining conditions. General purpose for all materials

1.7 TMS | MJ

With internal coolant through the flutes
Tools for Internal Thread For thread depth up to 2.5 x D1







Grade	P	M	K	N	S	H
FXFL8	●	○	●	●	●	≤45 HRc

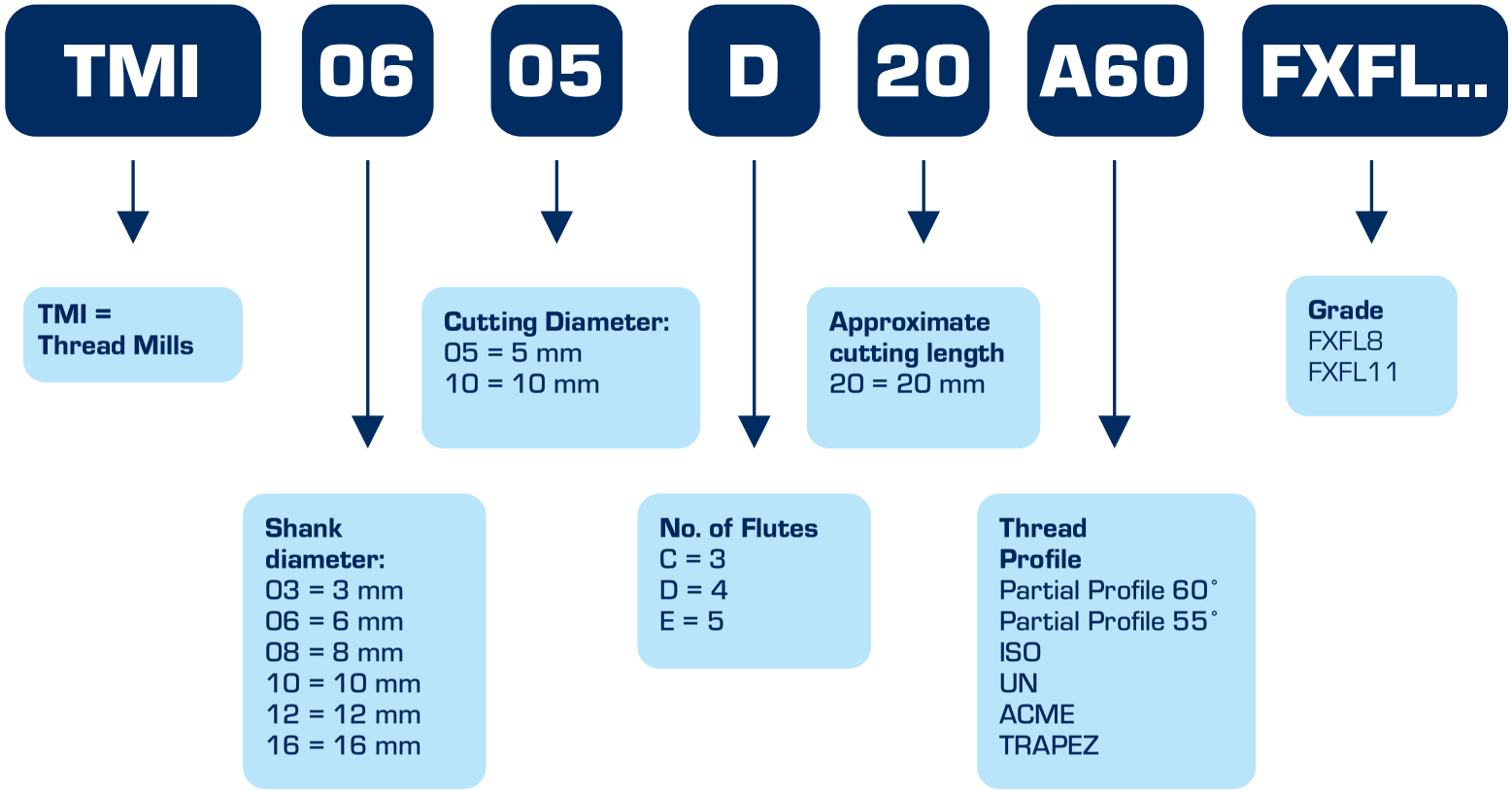
MJ

Pitch TPI	TD	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
*0.5	MJ3	*TMS 03024 C7 0.5 MJ	3	2.40	3	7.5	38	2.5xD1
*0.7	MJ4	*TMS 06032 C10 0.7 MJ	6	3.20	3	10.0	58	2.5xD1
*0.8	MJ5	*TMS 06039 C12 0.8 MJ	6	3.90	3	12.5	58	2.5xD1
*1.0	MJ6	*TMS 06048 C15 1.0 MJ	6	4.80	3	15.0	58	2.5xD1
1.25	MJ8	TMS 08061 C20 1.25 MJ	8	6.10	3	20.0	64	2.5xD1
1.5	MJ10	TMS 0808 C25 1.5 MJ	8	8.00	3	25.5	64	2.5xD1
1.75	MJ12	TMS 10092 C30 1.75 MJ	10	9.20	3	30.0	73	2.5xD1
2.0	MJ14, MJ16	TMS 1010 C35 2.0 MJ	10	10.00	3	35.0	73	2.5xD1

*Cutters without coolant

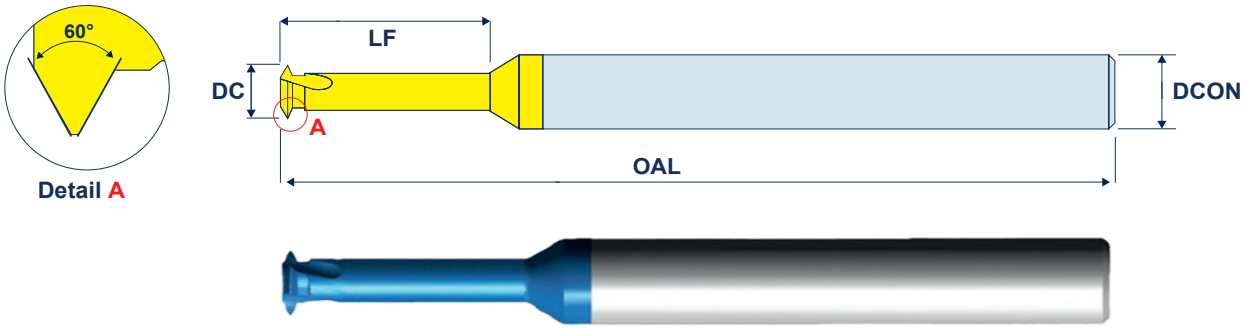
Order example: TMS 06048 C15 1.0 MJ FXFL8

Carbide grade FXFL8
Sub Micron grade with advanced PVD triple layer coating (ISO K 10-K20).
Extremely high heat resistant and smooth cutting operation, for high performance, and normal machining conditions. General purpose for all materials


TMI
06
05
D
20
A60
FXFL...
TMI =
Thread Mills
Shank
diameter:
03 = 3 mm
06 = 6 mm
08 = 8 mm
10 = 10 mm
12 = 12 mm
16 = 16 mm
Cutting Diameter:
05 = 5 mm
10 = 10 mm
No. of Flutes
C = 3
D = 4
E = 5
Approximate
cutting length
20 = 20 mm
Thread
Profile
Partial Profile 60°
Partial Profile 55°
ISO
UN
ACME
TRAPEZ
Grade
FXFL8
FXFL11

1.9 TMI | Partial profile 60°

Same Tool for Internal and External Thread



Grade	P	M	K	N	S	H
FXFL8	●	●	●	○	●	≤52 HRc

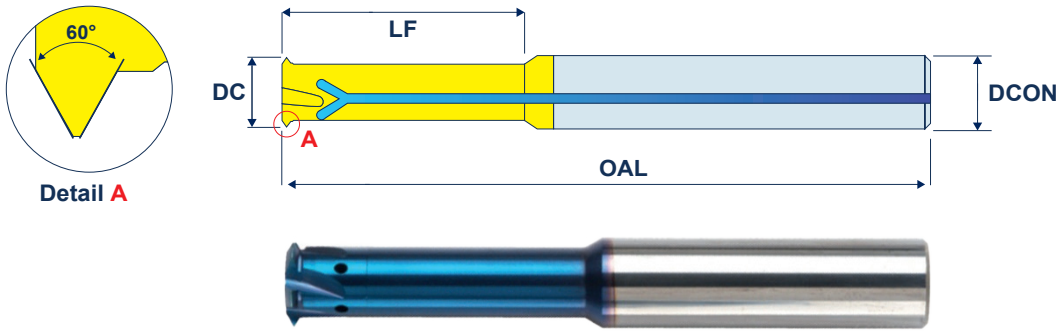
PARTIAL PROFILE 60

Pitch mm	Pitch TPI	Ordering Code	M Coarse	M Fine	UN, UNC, UNS, UNC & UNEF	DCON	DC	No. of Flutes	LF	OAL
0.25-0.35	100-72	TMI 03012 C3 A60	M1.6 x 0.35	M1.6 x 0.25 M1.8 x 0.25 M2 x 0.25	0-80 UNF	3	1.15	3	3.1	39
0.35-0.45	72-56	TMI 03014 C4 A60	M2 x 0.4 M2.2 x 0.45	M2 X 0.35 M2.2 X 0.35	1-64 UNC, 1-72 UNF, 2-56 UNC, 2-64 UNF	3	1.40	3	3.7	39
0.35-0.5	72-48	TMI 0604 C15 A60		M4.5 x 0.35 M5 x 0.35 M5.5 x 0.35 M6.0 x 0.35 M5 x 0.5 M6 x 0.5	10-56 UNS, 10-48 UNS, 12-56 UNS, 12-48 UNS	6	4.00	3	15.0	39
0.35-0.6	72-40	TMI 03019 C5 A60	M2.5 x 0.45	M2.5 x 0.35 M3 x 0.35	3-48 UNC, 3-56 UNF, 4-40 UNC, 4-48 UNF	3	1.90	3	5.2	39
0.5-0.8	48-32	TMI 03024 C7 A60	M3 x 0.5 M3.5 x 0.6	M3.5 x 0.5	5-40 UNC, 5-44 UNF, 6-32 UNC, 6-40 UNF	3	2.45	3	7.0	58
0.5-1.0	48-24	TMI 06032 C9 A60	M4 x 0.7 M4.5 x 0.75	M4 x 0.5	8-32 UNC, 8-36 UNF, 10-24 UNC, 10-28 UNS, 10-32 UNF	6	3.20	3	9.5	58
0.5-1.0	48-24	TMI 0604 C12 A60	M5 x 0.8 M6 x 1.0	M5 x 0.5 M5.5 x 0.5 M5 x 0.75	10-36 UNS, 10-40 UNS,10-48 UNS, 12-24 UNC, 12-28 UNF	6	4.00	3	12.5	58

Order example: TMI 03024 C7 A60 FXFL11
Carbide grade: FXFL11
Ultra-fine Sub-micron grade with PVD triple layer coating

1.10 TMI | Partial profile 60° with internal coolant

With internal coolant through the flutes
Same Tool for Internal and External Thread



For threading deep parts

Grade	P	M	K	N	S	H
FXFL8	●	●	●	○	●	≤52 HRc

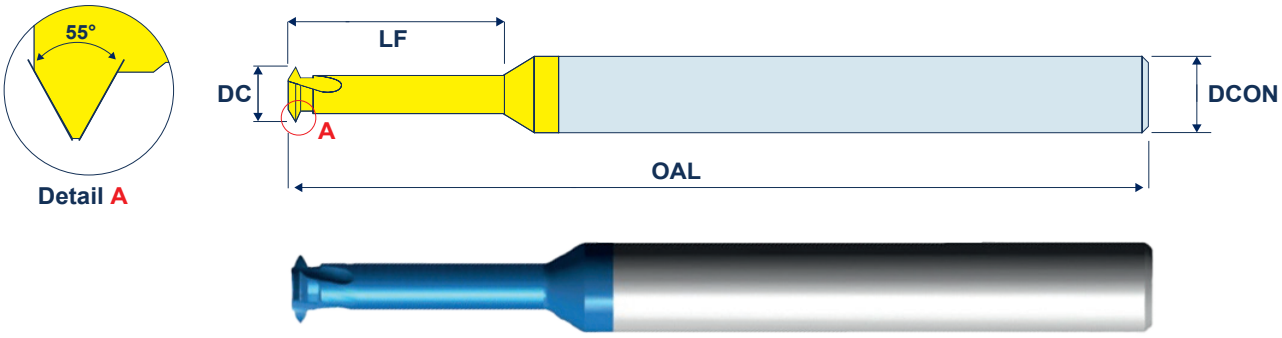
PARTIAL PROFILE 60 IC

Pitch mm	Pitch TPI	Thread Dia. (mm)	Ordering Code	DCON	DC	No. of Flutes	LF	OAL
Int. 0.5 - 0.8 Ex. 0.4 - 0.8	56-28 64-32	ø≥ 6	TMI 0605 D20 A60	6	5.0	4	20	58
		ø≥ 9	TMI 0808 D28 A60	8	8.0	4	28	64
		ø≥13	TMI 1212 E38 A60	12	12.0	5	38	84
Int. 1.0 - 1.75 Ex. 0.8 - 1.5	28-14 32-16	ø≥10	TMI 0808 D30 A60	8	8.0	4	30	64
		ø≥12	TMI 1010 D35 A60	10	10.0	4	35	73
		ø≥14	TMI 1212 E39 A60	12	12.0	5	39	84
Int. 2.0 - 3.0 Ex. 1.75-2.5	13-8 15-10	ø≥16	TMI 1212 E40 A60	12	12.0	5	40	84
		ø≥18	TMI 1614 E45 A60	16	14.0	5	45	101
		ø≥20	TMI 1616 E50 A60	16	16.0	5	50	101

Order example: TMI 0808 D28 A60 FXFL8
Carbide grade: FXFL8 with triple layer coating

1.11 TMI | Partial profile 55°

Same Tool for Internal and External Thread



Grade	P	M	K	N	S	H
FXFL11	●	●	●	○	●	≤62 HRc

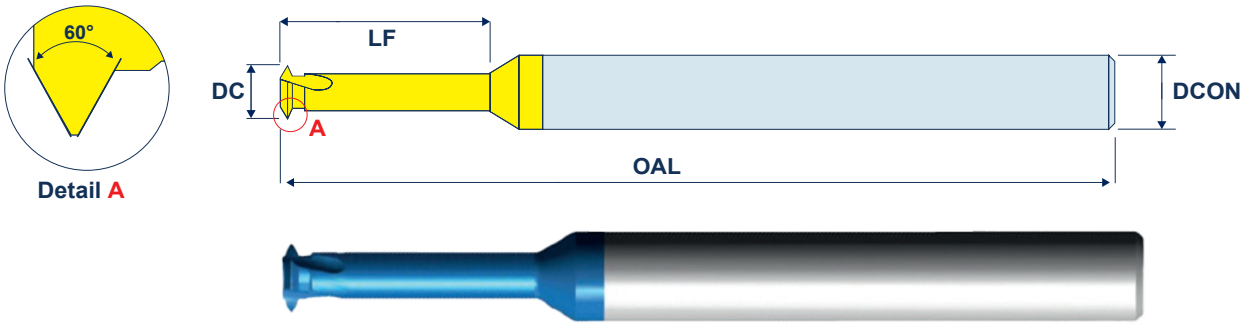
PARTIAL PROFILE 55°

Pitch TPI	Ordering Code	DCON	DC	No. of Flutes	LF	OAL
40-32	TMI 03023 C7 A55	3	2.25	3	7.0	39
28-20	TMI 06044 C14 A55	6	4.35	3	14.0	58
28-18	TMI 06059 C20 A55	6	5.85	3	20.5	58
20-14	TMI 0807 C23 A55	8	7.00	3	23.0	64

Order example: TMI 06044 C14 A55 FXFL11
Carbide grade: FXFL11 Ultra-ne Sub-micron grade with PVD triple layer coating

1.12 TMI | ISO

Tools for Internal Thread
For thread depth up to 3.5 x D1



Grade	P	M	K	N	S	H
FXFL11	●	●	●	○	●	≤62 HRc

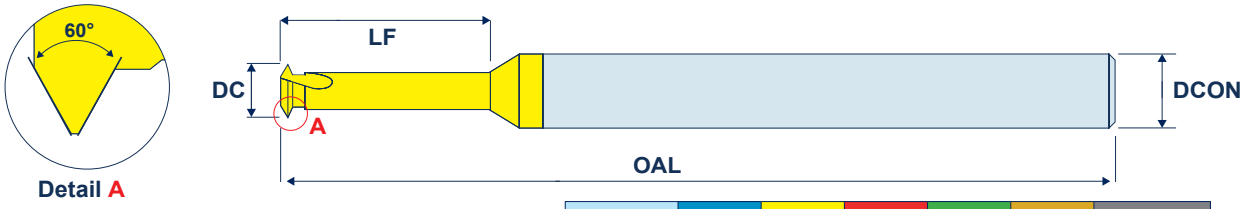
ISO

Pitch mm	M Coarse	M Fine	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
0.25	M1		TMI 03007 C3 0.25 ISO	3	0.72	3	3.6	39	3.5xD1
0.25	M1.2	M1.4 M1.6	TMI 03009 C4 0.25 ISO	3	0.90	3	4.3	39	3.5xD1
0.3	M1.4		TMI 03011 C5 0.3 ISO	3	1.05	3	5.0	39	3.5xD1
0.35	M1.6	M2 M2.2	TMI 03012 C6 0.35 ISO	3	1.20	3	5.7	39	3.5xD1
0.4	M2		TMI 03016 C7 0.4 ISO	3	1.55	3	7.1	39	3.5xD1
0.45	M2.5		TMI 0302 C8 0.45 ISO	3	1.95	3	8.8	39	3.5xD1
0.5	M3	M3.5 M4	TMI 03024 C10 0.5 ISO	3	2.37	3	10.6	39	3.5xD1
0.7	M4		TMI 04032 D14 0.7 ISO	4	3.20	4	14.0	50	3.5xD1

Order example: TMI 06044 C14 A55 FXFL11
Carbide grade: FXFL11 Ultra-ne Sub-micron grade with PVD triple layer coating

1.13 TMI | UN

Tools for Internal Thread
For thread depth up to 3.5 x D1



UN

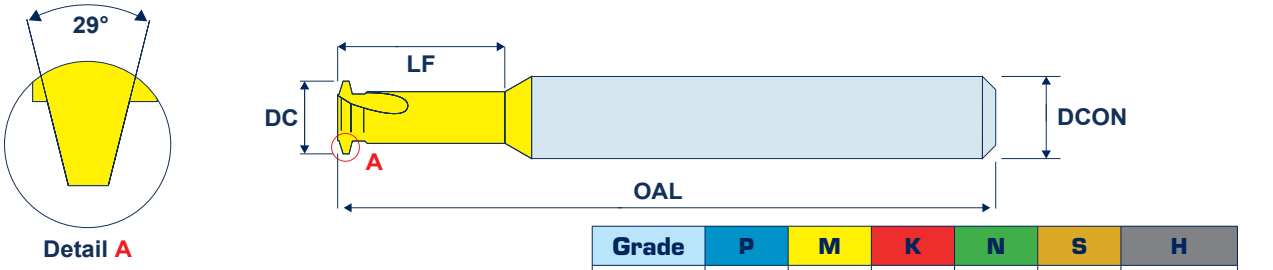
Grade	P	M	K	N	S	H
FXFL8	●	●	●	○	●	≤52 HRc

Pitch TPI	UNC	UNF	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
80		0	TMI 03012 C5 80 UN	3	1.15	3	5.5	39	3.5xD1
72		1	TMI 03015 C7 72 UN	3	1.45	3	6.6	39	3.5xD1
56	2	3	TMI 03016 C9 56 UN	3	1.65	3	8.9	39	3.5xD1
40	4		TMI 03021 C10 40 UN	3	2.10	3	10.1	39	3.5xD1

Order example: TMI 03016C9 56 UN FXFL11
Carbide grade: FXFL11 Ultra-ne Sub-micron grade with PVD triple layer coating

1.14 TMI | TRAPEZ-DIN 103

Tools for Internal Thread
For thread depth up to 2 x D1



Grade	P	M	K	N	S	H
FXFL8	●	●	●	○	●	≤52 HRc

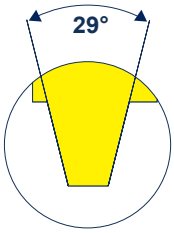
TR

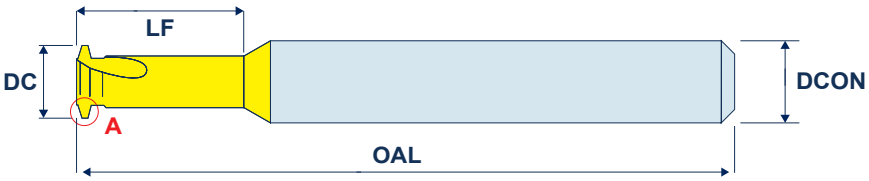
Pitch mm	Thread size	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
1.5	Tr8x1.5 Tr9x1.5	TMI 06055 C13 1.5 TR	6	5.5	3	13.5	58	2xD1
2	Tr10x2 Tr11x2	TMI 08066 C21 2 TR	8	6.6	3	21.0	64	2xD1
2	Tr12x2 Tr14x2	TMI 10086 D25 2 TR	10	8.6	4	25.0	73	2xD1
3	Tr12x3	TMI 0807 C25 3 TR	8	7.0	3	25.0	64	2xD1
3	Tr14x3 Tr22x3	TMI 10089 D29 3 TR	10	8.9	4	29.0	73	2xD1
4	Tr16x4 Tr18x4 Tr20x4	TMI 10092 C33 4 TR	10	9.2	3	33.0	73	2xD1
5	Tr22x5 Tr24x5 Tr26x5	TMI 14135 D45 5 TR	14	13.5	4	45.0	105	2xD1

Order example: TMI 08066 C21 2TR FXFL8

1.15 TMI | ACME

Tools for Internal Thread
For thread depth up to 2 x D1





ACME

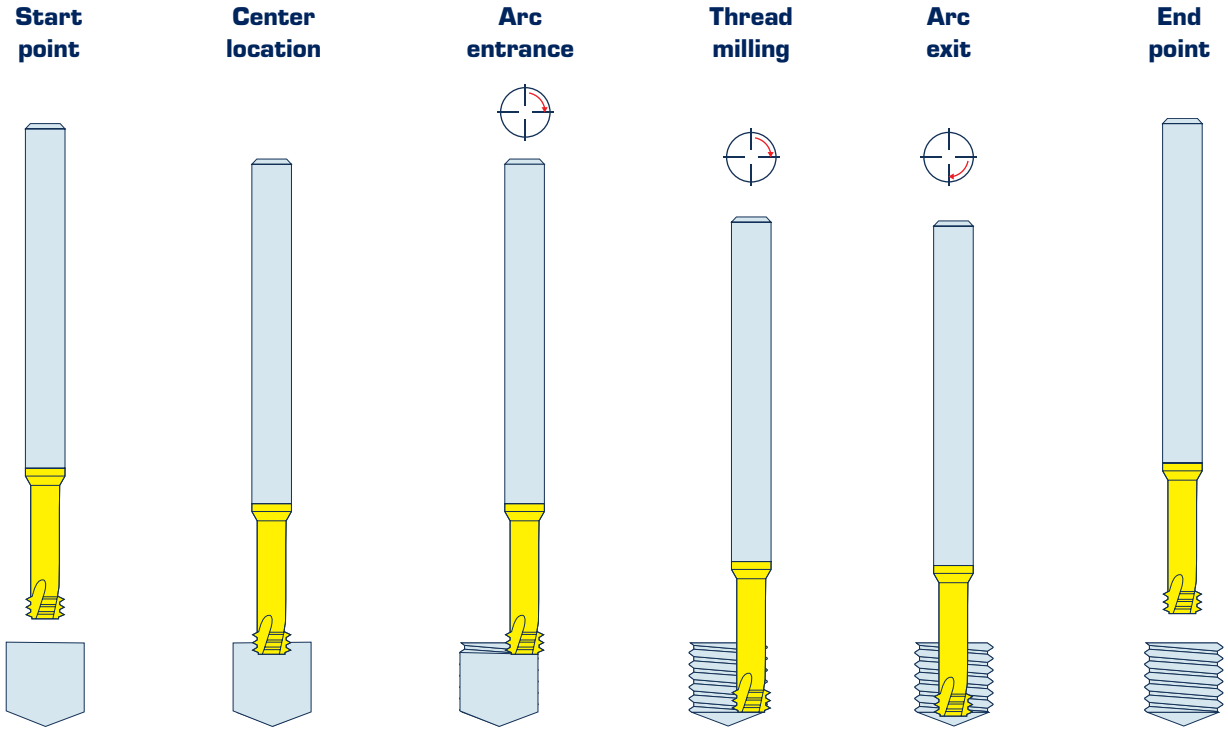
Pitch TPI	Thread size	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
16	1/4-16	TMI 0250 C04 16 ACME	1/4	4.3	3	9.7	64	1.5xD1
14	5/16-14	TMI 0250 C06 14 ACME	1/4	5.2		15.2	64	2 xD1
12	3/8-12 7/16-12	TMI 0250 C08 12 ACME	1/4	6.1	3	19.1	64	2 xD1
10	1/2-10	TMI 0375 D10 10 ACME	3/8	8.3	4	25.4	76	2 xD1
8	5/8-8	TMI 0500 D11 8 ACME	1/2	10.4	4	27.9	89	1.5xD1
6	3/4-6 7/8-6	TMI 0500 D12 6 ACME	1/2	12.0	4	30.5	89	1.5xD1
5	1-5 1 1/8-5 1 1/4-5	TMI 0625 E15 5 ACME	5/8	15.9	5	38.1	102	1.5xD1

Order example: TMI 0375 D10 10ACME FXFL8

1.16 TMS & TMI | Technical information

FXFL7 Sub-Micron Grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials; it should be run at medium to high cutting speeds.

FXFL8 Sub-Micron Grade with Aluminum Titanium Nitride (AlTiN) multi-layer coating (ISO K10-K20). Extremely high heat resistant and smooth cutting operation, for high performance, and normal machining conditions. General purpose for all materials.



MINI THREAD-MILL VS. TAPS

Features	Mini Mill-Thread	Taps
Thread surface quality	High	Medium
Thread geometry	Very accurate	Medium
Thread tolerances	4H, 5H, 6H with std cutter	6H with standard tap, 4H with specific tap
Machining time	Same as tap or shorter	Short
Tool breakage	Almost not possible	Could happen often
Machining load	Very low	High
Range of thread diameters	Wide range of diameters	Specific tap for each diameter
Right/Left hand threading	Same cutter	Specific tap for each

ISO Standard	Material	Cutting Speed (m/min)	Feed mm/tooth Cutting Diameter=D Ø1	Ø1.5	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø12	Ø14	Ø16
P	LOW & MEDIUM CARBON STEELS <0.55%C	60 - 120	0.04	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	HIGH CARBON STEELS ≥55%C	60 - 90	0.03	0.04	0.05	0.06	0.08	0.09	0.10	0.12	0.13	0.14	0.14	0.16	0.17	0.18
	ALLOY STEELS, TREATED STEELS	50 - 80	0.03	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.10	0.12	0.13	0.14
M	STAINLESS STEEL-FREE CUTTING	70 - 100	0.02	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
	STAINLESS STEEL-AUSTENITIC	60 - 90	0.02	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
	CAST STEELS	70 - 90	0.03	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.10	0.12	0.13	0.14
K	CAST IRON	40 - 80	0.04	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
N	ALUMINUM ≤12%SI, COPPER	100 - 200	0.04	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	ALUMINUM >12%SI	60 - 140	0.03	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.11	0.13	0.14
	SYNTHETICS , DUROPLASTICS, THERMOPLASTICS	50 - 200	0.09	0.10	0.11	0.12	0.14	0.16	0.18	0.19	0.19	0.19	0.19	0.19	0.20	0.20
S	NICKEL ALLOYS, TITANIUM ALLOYS	20 - 40	0.03	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08

TMSH & TMH

2.1 TMSH & TMH | Information

TMSH Type
solid carbide thread mills designed specifically for the machining of hardened materials up to 62HRc.
These tools provide high performance, improved cut and an excellent surface finish.

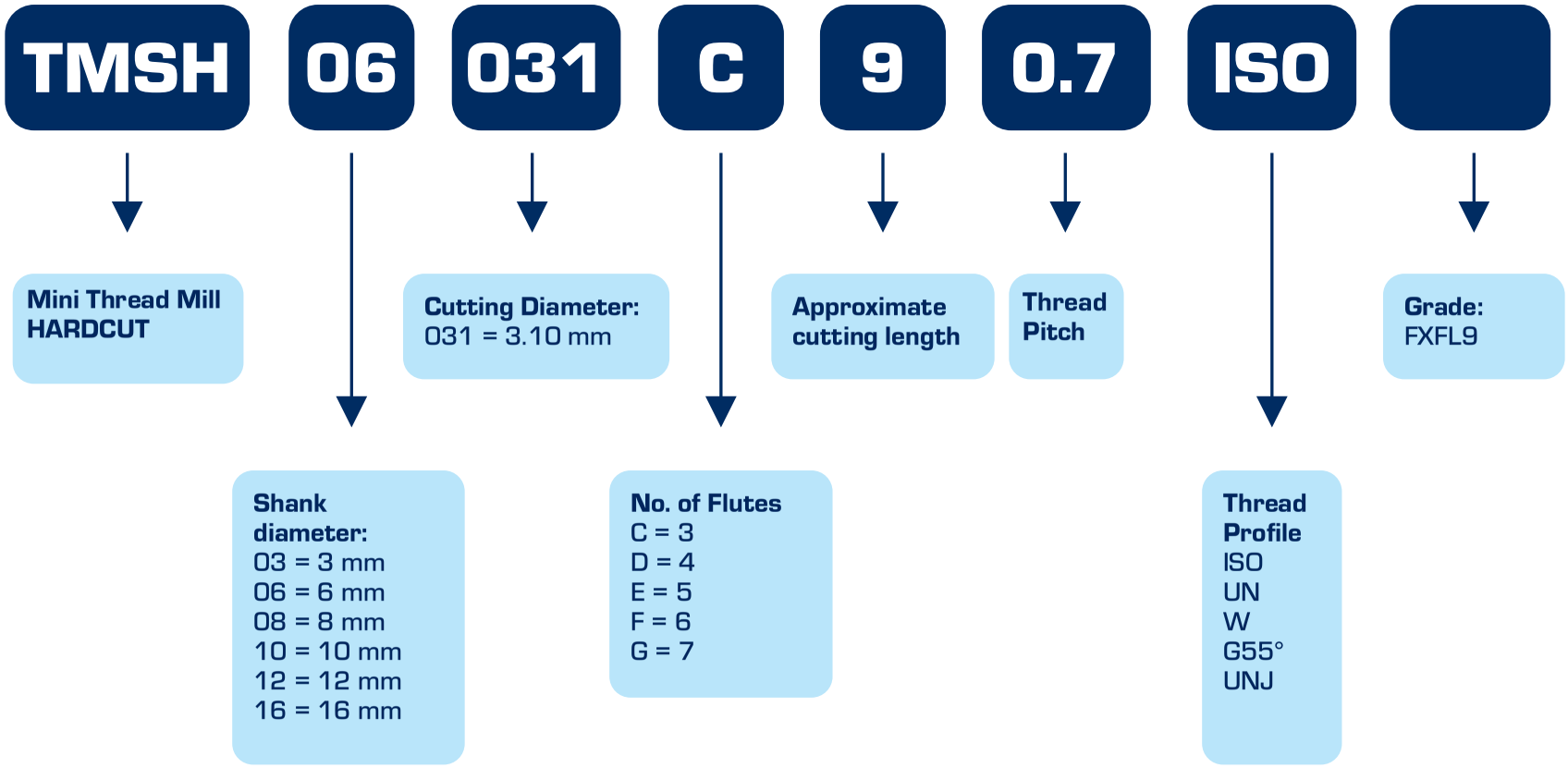
HARDCUT TMSH & TMS Types
Carbide grade: FXFL9/FXFL11 - Ultra fine sub-micron grade with Advanced PVD Triple Coating

TMH Type
Combidex provide innovative mill thread solid carbide tools for machining:

- Hardened steels and cast iron up to 62 HRc.
- High temperature alloys.
- Titanium alloys.
- Super Alloys (Hastelloy, Inconel, Nickel Base Alloys).
- Threading from ISO M1.4 x 0.3 and 0-80UN
- Perfect solution for the Die and Mold industry
- Working at high cutting speeds
- Short machining time
- Low cutting forces thanks to the short profile

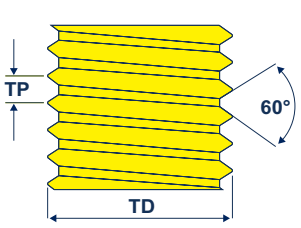
Advantages
- Same tool performs thread milling and chamfering - saves machining time.
- Increased cutting diameter - better rigidity and stability.
- Coating provides high wear and heat resistance. • Ultra fine grade - dedicated for hardened materials.
- Short chips are produced, insure high process security.
- Short cycle time - increases productivity.
- Thread length up to 2xD.

2.2 TMSH | Ordering codes



2.3 TMSH | ISO

Left hand cutting
For CNC code use M04



Grade	P	M	K	N	S	H
FXFL9	●	●	○	○	●	≤62 HRc

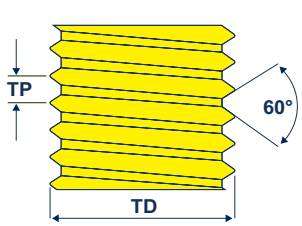
ISO

Pitch mm	M Coarse	M Fine	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
0.3	M1.4		TMSH 03011 C4 0.3 ISO	3	1.05	3	4.0	39	3xD1
0.35	M1.6, M1.8	M2, M2.5	TMSH 03012 C5 0.35 ISO	3	1.20	3	4.8	39	3xD1
0.4	M2		TMSH 06016 C4 0.4 ISO	6	1.53	3	4.5	58	2xD1
0.4	M2		TMSH 03016 C6 0.4 ISO	3	1.53	3	6.0	39	3xD1
0.45	M2.2		TMSH 06017 C5 0.45 ISO	6	1.65	3	5.0	58	2xD1
0.45	M2.2		TMSH 06017 C7 0.45 ISO	6	1.65	3	7.0	58	3xD1
0.45	M2.5		TMSH 0602 C5 0.45 ISO	6	1.95	3	5.5	58	2xD1
0.45	M2.5		TMSH 0602 C7 0.45 ISO	6	1.95	3	7.5	58	3xD1
0.5	M3	M4,M5	TMSH 06024 C6 0.5 ISO	6	2.37	3	6.5	58	2xD1
0.5	M3	M4,M5	TMSH 06024 C9 0.5 ISO	6	2.37	3	9.5	58	3xD1
0.6	M3.5		TMSH 06028 C7 0.6 ISO	6	2.75	3	7.5	58	2xD1
0.6	M3.5		TMSH 06028 C10 0.6 ISO	6	2.75	3	10.5	58	3xD1
0.7	M4		TMSH 06031 C9 0.7 ISO	6	3.10	3	9.0	58	2xD1
0.7	M4		TMSH 06031 C12 0.7 ISO	6	3.10	3	12.5	58	3xD1
0.7	M4		TMSH 06032 C12 0.7 ISO-L	6	3.20	3	12.5	105	3xD1
0.8	M5		TMSH 06038 C12 0.8 ISO	6	3.80	3	12.5	58	2xD1
0.8	M5		TMSH 06038 C16 0.8 ISO	6	3.80	3	16.0	58	3xD1
0.8	M5		TMSH 0604 C16 0.8 ISO-L	6	4.00	3	16.0	105	3xD1
1.0	M6	M8	TMSH 06047 C14 1.0 ISO	6	4.65	3	14.0	58	2xD1
1.0	M6	M8	TMSH 06047 C20 1.0 ISO	6	4.65	3	20.0	58	3xD1
1.0	M6	M8	TMSH 06048 C20 1.0 ISO-L	6	4.80	3	20.0	105	3xD1
1.0		M10,M12	TMSH 0808 D31 1.0 ISO	8	8.00	4	31.0	64	3XD1
1.25	M8	M10,M12	TMSH 0606 C18 1.25 ISO	6	6.00	3	18.0	58	2xD1
1.25	M8	M10,M12	TMSH 0606 C24 1.25 ISO	6	6.00	3	24.0	58	3xD1
1.5	M10	M14,M16	TMSH 08078 C23 1.5 ISO	8	7.80	3	23.0	64	2xD1
1.5	M10	M14,M16	TMSH 08078 D31 1.5 ISO	8	7.80	4	31.5	64	3xD1
1.75	M12		TMSH 1009 C26 1.75 ISO	10	9.00	3	26.0	73	2xD1
2.0	M14	M17	TMSH 1010 D30 2.0 ISO	10	10.00	4	30.0	73	2xD1
2.0	M16	M18,M20	TMSH 12118 D35 2.0 ISO	12	11.80	4	35.0	84	2xD1

Order example: TMSH 06031C9 0.7 ISO FXFL9

2.4 TMSH | UN

Left hand cutting
For CNC code use M04



Grade	P	M	K	N	S	H
FXFL9	●	●	○	○	●	≤62 HRc

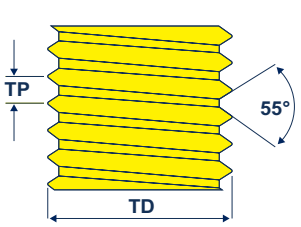
UN

Pitch mm	UNC	UNF	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
80		0	TMSH 06012 C4 80 UN	6	1.15	3	4.0	58	3xD1
72		1	TMSH 06014 C3 72 UN	6	1.45	3	3.7	58	2xD1
72		1	TMSH 03015 C6 72 UN	3	1.45	3	6.0	39	3xD1
64	1	2	TMSH 06014 C3 64 UN	6	1.40	3	3.8	58	2xD1
56	2	3	TMSH 06016 C4 56 UN	6	1.65	3	4.4	58	2xD1
56	2	3	TMSH 06016 C6 56 UN	6	1.65	3	6.6	58	3xD1
48	3	4	TMSH 06019 C5 48 UN	6	1.90	3	5.2	58	2xD1
40	4		TMSH 06021 C6 40 UN	6	2.10	3	6.3	58	2xD1
40	4		TMSH 06021 C8 40 UN	6	2.10	3	8.0	58	3xD1
40	5	6	TMSH 06024 C7 40 UN	6	2.45	3	7.0	58	2xD1
40	5	6	TMSH 06024 C9 40 UN	6	2.45	3	9.6	58	3xD1
36		8	TMSH 06033 C9 36 UN	6	3.30	3	9.0	58	2xD1
32	6		TMSH 06025 C7 32 UN	6	2.55	3	7.1	58	2xD1
32	6		TMSH 06025 C10 32 UN	6	2.55	3	10.5	58	3xD1
32	8		TMSH 06032 C9 32 UN	6	3.20	3	9.5	58	2xD1
32	8		TMSH 06032 C12 32 UN	6	3.20	3	12.5	58	3xD1
32		10	TMSH 06037 C10 32 UN	6	3.70	3	10.5	58	2xD1
32		10	TMSH 06037 C15 32 UN	6	3.70	3	15.0	58	3xD1
28		12	TMSH 06042 C11 28 UN	6	4.20	3	11.0	58	2xD1
28		1/4	TMSH 0605 C14 28 UN	6	5.00	3	14.5	58	2xD1
28		1/4	TMSH 0605 C19 28 UN	6	5.00	3	19.0	58	3xD1
24	10,12		TMSH 06035 C10 24 UN	6	3.50	3	10.6	58	2xD1
24		5/16, 3/8	TMSH 08066 C17 24 UN	8	6.60	3	17.0	64	2xD1
24		5/16, 3/8	TMSH 08066 C24 24 UN	8	6.60	3	24.0	64	3xD1
20	1/4		TMSH 06047 C14 20 UN	6	4.75	3	14.0	58	2xD1
20	1/4		TMSH 06047 C19 20 UN	6	4.75	3	19.0	58	3xD1
20		7/16	TMSH 0808 C25 20 UN	8	8.00	3	25.0	64	2xD1
18	5/16		TMSH 0606 C17 18 UN	6	6.00	3	17.0	58	2xD1
18	5/16		TMSH 0606 C23 18 UN	6	6.00	3	23.0	58	3xD1
18		5/8	TMSH 1212 D35 18 UN	12	12.00	4	35.0	84	2xD1
16	3/8		TMSH 08067 C22 16 UN	8	6.70	3	22.0	64	2xD1
16	3/8		TMSH 08074 D30 16 UN	8	7.40	4	30.2	64	3xD1
14	7/16		TMSH 08077 C25 14 UN	8	7.70	3	25.0	64	2xD1
13	1/2		TMSH 10092 C27 13 UN	10	9.20	3	27.5	73	2xD1
12	9/16		TMSH 12105 C31 12 UN	12	10.50	3	31.5	84	2xD1
11	5/8		TMSH 12114 C34 11 UN	12	11.40	3	34.5	84	2xD1
10	3/4		TMSH 16144 D41 10 UN	16	14.40	4	41.5	105	2xD1

Order example: TMSH 06047 C14 20 UN FXFL9

2.3 TMSH | G 55°, MJ & UNJ

Left hand cutting
For CNC code use M04



Grade	P	M	K	N	S	H
FXFL9	●	●	○	○	●	≤62 HRc

G 55°

Pitch TPI	Standard	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
28	G1/8	TMSH 08078 C19 28 W	8	7.8	3	19.5	64	2xD1
19	G1/4-3/8	TMSH 1010 D30 19 W	10	10.0	4	30.0	73	2xD1
14	G1/2-7/8	TMSH 1212 D37 14 W	12	12.0	4	37.0	84	2xD1
11	G≥1	TMSH 1616 D44 11 W	16	16.0	4	44.0	105	2xD1

Order example: TMSH 06031C9 0.7 ISO FXFL9

Tools for Internal Thread

Grade	P	M	K	N	S	H
FXFL6	●	●	○	○	●	≤58 HRc

MJ

Pitch TPI	TD	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
0.5	MJ3	TMSH 06024 C9 0.5 MJ	6	2.40	3	9.5	58	3xD1
0.7	MJ4	TMSH 06032 C12 0.7 MJ	6	3.20	3	12.7	58	3xD1
0.8	MJ5	TMSH 0604 D15 0.8 MJ	6	4.00	4	15.8	58	3xD1
1.0	MJ6-MJ8	TMSH 06048 D19 1.0 MJ	6	4.80	4	19.0	58	3xD1
1.25	MJ8-MJ10	TMSH 08064 D25 1.25 MJ	8	6.40	4	25.3	64	3xD1
1.5	MJ10-MJ12	TMSH 0808 D31 1.5 MJ	8	8.00	4	31.5	64	3xD1
1.75	MJ12	TMSH 10095 D25 1.75 MJ	10	9.50	4	25.8	73	2xD1
2.0	MJ14-MJ20	TMSH 1211 D30 2.0 MJ	12	11.00	4	30.0	84	2xD1

Order example: TMSH 10095 D25 1.75 MJ FXFL6

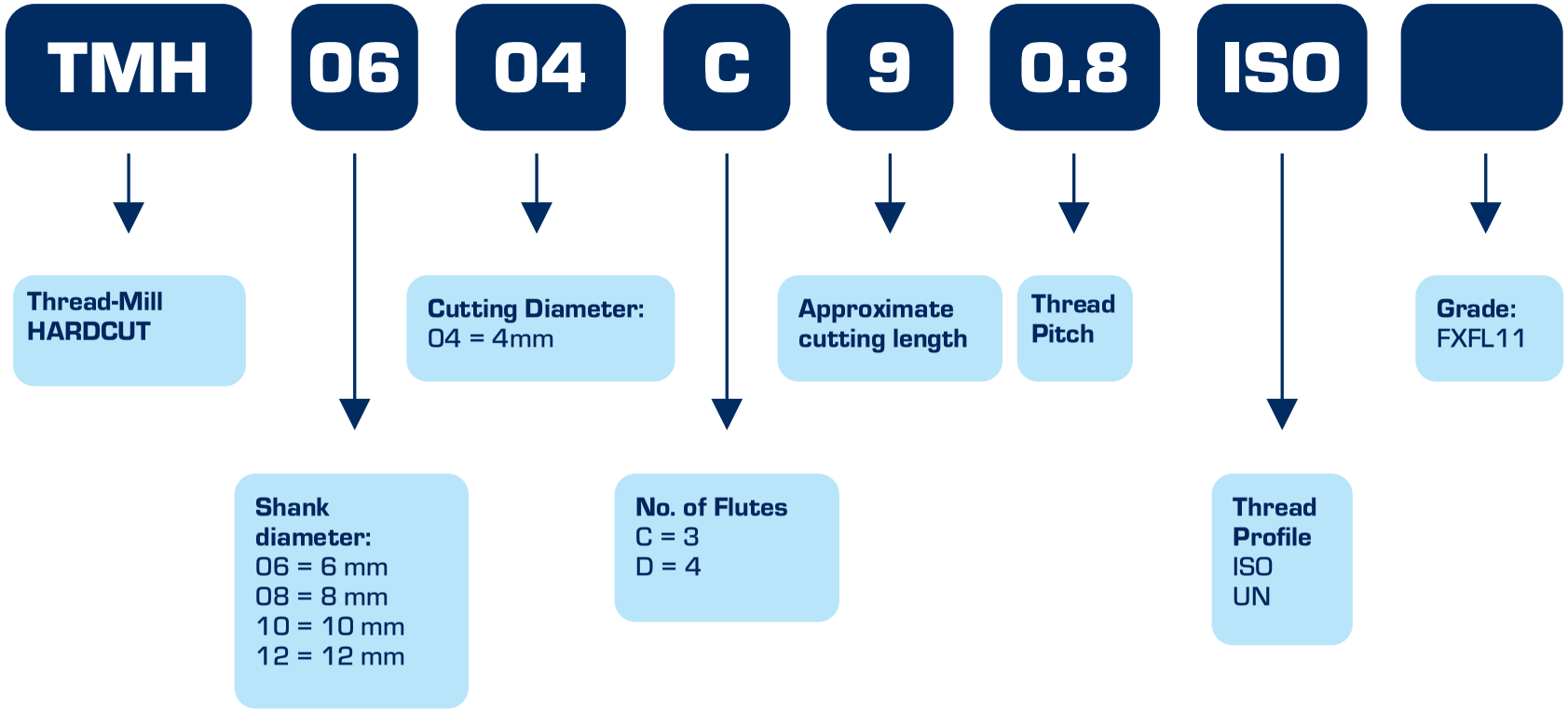
UNJ

Grade	P	M	K	N	S	H
FXFL6	●	●	○	○	●	≤58 HRc

Pitch TPI	UNJC	UNJF	Ordering Code	DCON	DC	No. of Flutes	LF	OAL	Thread depth
56	2		TMSH 06016 C7 56 UNJ	6	1.65	3	7.0	58	3xD1
32	6		TMSH 06025 C11 32 UNJ	6	2.55	3	11.3	58	3xD1
32	8	10	TMSH 06033 C13 32 UNJ	6	3.30	3	13.3	58	3xD1
28		1/4	TMSH 06052 D20 28 UNJ	6	5.20	4	20.0	58	3xD1
24		5/16, 3/8	TMSH 08067 D24 24 UNJ	8	6.70	4	24.9	64	3xD1
20	1/4		TMSH 06049 D20 20 UNJ	6	4.90	4	20.3	58	3xD1
20		7/16	TMSH 10092 D23 20 UNJ	10	9.20	4	23.5	73	2xD1
18	5/16		TMSH 0606 D17 18 UNJ	6	6.00	4	17.3	58	2xD1
16	3/8		TMSH 08074 D20 16 UNJ	8	7.40	4	20.6	64	2xD1
14	7/16		TMSH 10085 D24 14 UNJ	10	8.5	4	24.0	73	2xD1
13	1/2		TMSH 10098 D27 13 UNJ	10	9.80	4	27.4	73	2xD1

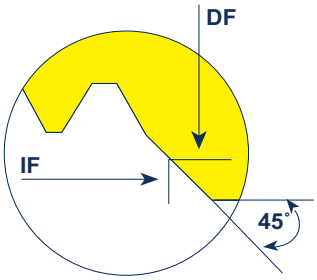
Order example: TMSH **08067D24 24 UNJ** FXFL6

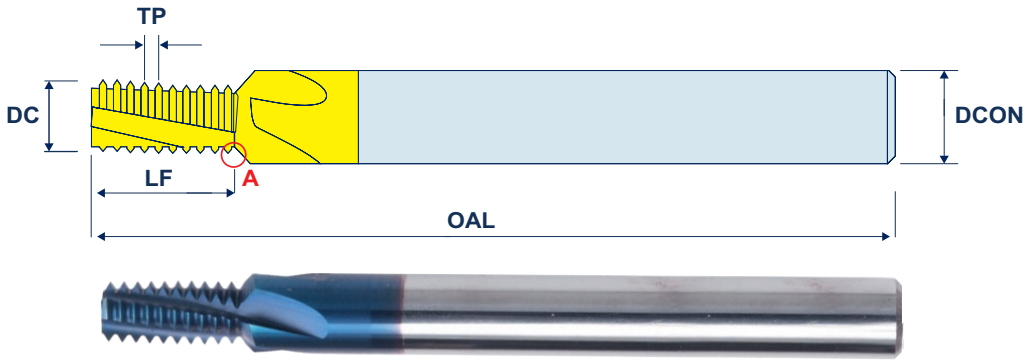
2.4 TMH | Ordering codes



2.5 TMH | ISO

Tools for Internal Thread





Grade	P	M	K	N	S	H
FXFL11	●	○	●	○	●	≤62 HRc

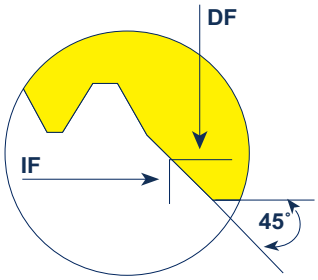
ISO

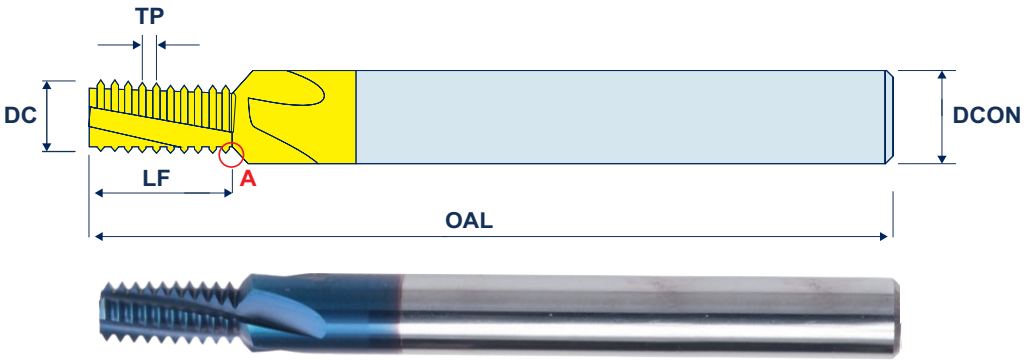
Pitch mm	M Coarse	M Fine	Ordering Code	DCON	DC	DF	No. of Flutes	LF	IF	OAL
0.5	M3	ø ≥ 4	TMH 06024 C5 0.5 ISO	6	2.4	3.6	3	5.3	5.9	58
0.7	M4	ø ≥ 5	TMH 06031 C7 0.7 ISO	6	3.1	4.3	3	7.4	8.0	58
0.8	M5	ø ≥ 6	TMH 0604 C9 0.8 ISO	6	4.0	5.2	3	9.2	9.8	58
1.0	M6	ø ≥ 7	TMH 08048 D10 1.0 ISO	8	4.8	6.4	4	10.5	11.3	64
1.0		ø ≥ 9	TMH 0806 D13 1.0 ISO	8	6.0	7.6	4	13.5	14.3	64
1.0		ø ≥ 10	TMH 1008 D16 1.0 ISO	10	8.0	9.6	4	16.5	17.3	73
1.25	M8	ø ≥ 10	TMH 0806 D14 1.25 ISO	8	6.0	7.6	4	14.4	15.2	64
1.5	M10	ø ≥ 12	TMH 1008 D17 1.5 ISO	10	8.0	9.8	4	17.3	18.2	73
1.5		ø ≥ 14	TMH 1210 D21 1.5 ISO	12	10.0	11.8	4	21.8	22.7	84
1.75	M12	ø ≥ 12	TMH 12095 D20 1.75 ISO	12	9.5	11.5	4	20.1	21.1	84

Order example: TMH 08048 D10 1.0 ISO FXFL11

2.6 TMH | UN

Tools for Internal Thread





Grade	P	M	K	N	S	H
FXFL11	●	○	●	○	●	≤62 HRc

UN

Pitch TPI	UNC	UNF	UNEF	Ordering Code	DCON	DC	DF	No. of Flutes	LF	IF	OAL
40	5	6		TMH 06025 C6 40 UN	6	2.5	3.7	3	6.0	6.6	58
32	6			TMH 06026 C5 32 UN	6	2.6	3.8	3	5.9	6.5	58
32	8			TMH 06032 C7 32 UN	6	3.2	4.4	3	7.5	8.1	58
32		10	12	TMH 06038 C9 32 UN	6	3.8	5.0	3	9.1	9.7	58
28		1/4		TMH 08052 D11 28 UN	8	5.2	6.8	4	11.3	12.1	64
28			7/16, 1/2	TMH 12096 D20 28 UN	12	9.6	11.2	4	20.4	21.2	84
24		5/16, 3/8	9/16, 5/8, 11/16	TMH 08066 D14 24 UN	8	6.6	8.0	4	14.3	15.0	64
20	1/4			TMH 06048 C12 20 UN	6	4.8	6.0	3	12.1	12.7	58
20		7/16, 1/2	3/4, 1	TMH 12092 D21 20 UN	12	9.2	10.8	4	21.0	21.8	84
18	5/16	9/16, 5/8	11/16	TMH 08057 C14 18 UN	8	5.7	7.5	3	14.8	15.7	64
16	3/8	3/4		TMH 10074 C16 16 UN	10	7.4	9.2	3	16.7	17.6	73
14	7/16	7/8		TMH 10085 D20 14 UN	10	8.5	9.9	4	20.9	21.6	73
13	1/2			TMH 12094 D22 13 UN	12	9.4	11.4	4	22.5	23.5	84

Order example: TMH 06048 C12 20 UN FXFL11

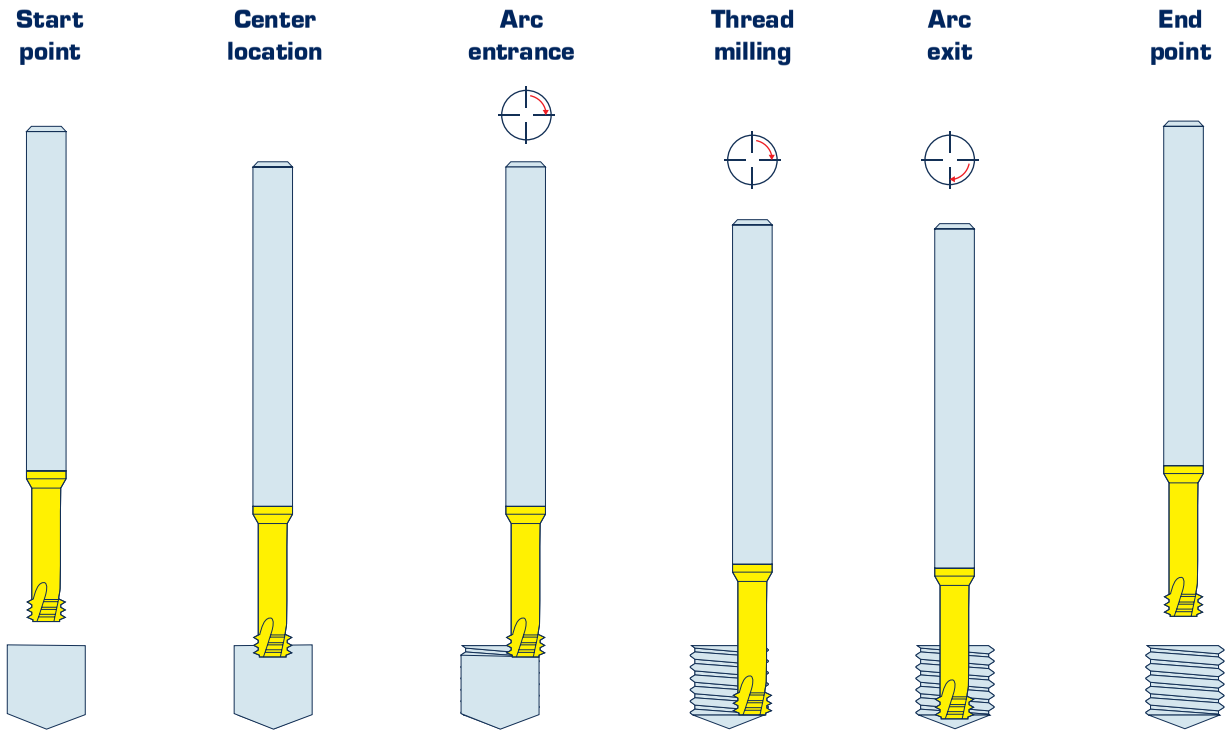
2.7 TMSH & TMH | Technical information

FXFL9 Sub-Micron Grade with advanced PVD triple coating.

Left hand cutting for CNC code use M04

ISO Standard	Material	Hardness HRc	Cutting Speed (m/min)	Feed mm/tooth Cutting Diameter=D													
				Ø1	Ø1.5	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø12	Ø14	Ø16
S	NICKEL ALLOYS, TITANIUM ALLOYS AND HIGH TEMP. ALLOYS	20 - 40	0.03	0.03	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
H	HARDENED STEELS	45 - 50	60 - 70	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.10	0.11
		51 - 55	50 - 60	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.09	0.10
		56 - 62	40 - 50	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.08	0.09

Case Study	
Application Thread Depth Workpiece Material Hardness	Internal Thread M4 X 0.7 8.0 mm Tool Steel: D2 60-62 (HRc)
Cutter Description	TMSH 06031 C9 0.7 ISO
Machining Conditions	Cutting Speed: 44 m / min Feed: 0.03 mm / tooth
Machine Control Cooling Lubricant	Mori Seiki VN5000 Fanuc Emulsion
Tool Life (No. of Threads)	84



TMD & TMDH

3.1 TMD | Information

TMD Type

High Performance tools with internal coolant supply for the production of internal threads.
*Circular movement produces the thread hole, the thread and a chamfer
in one work process.

Carbide grade:

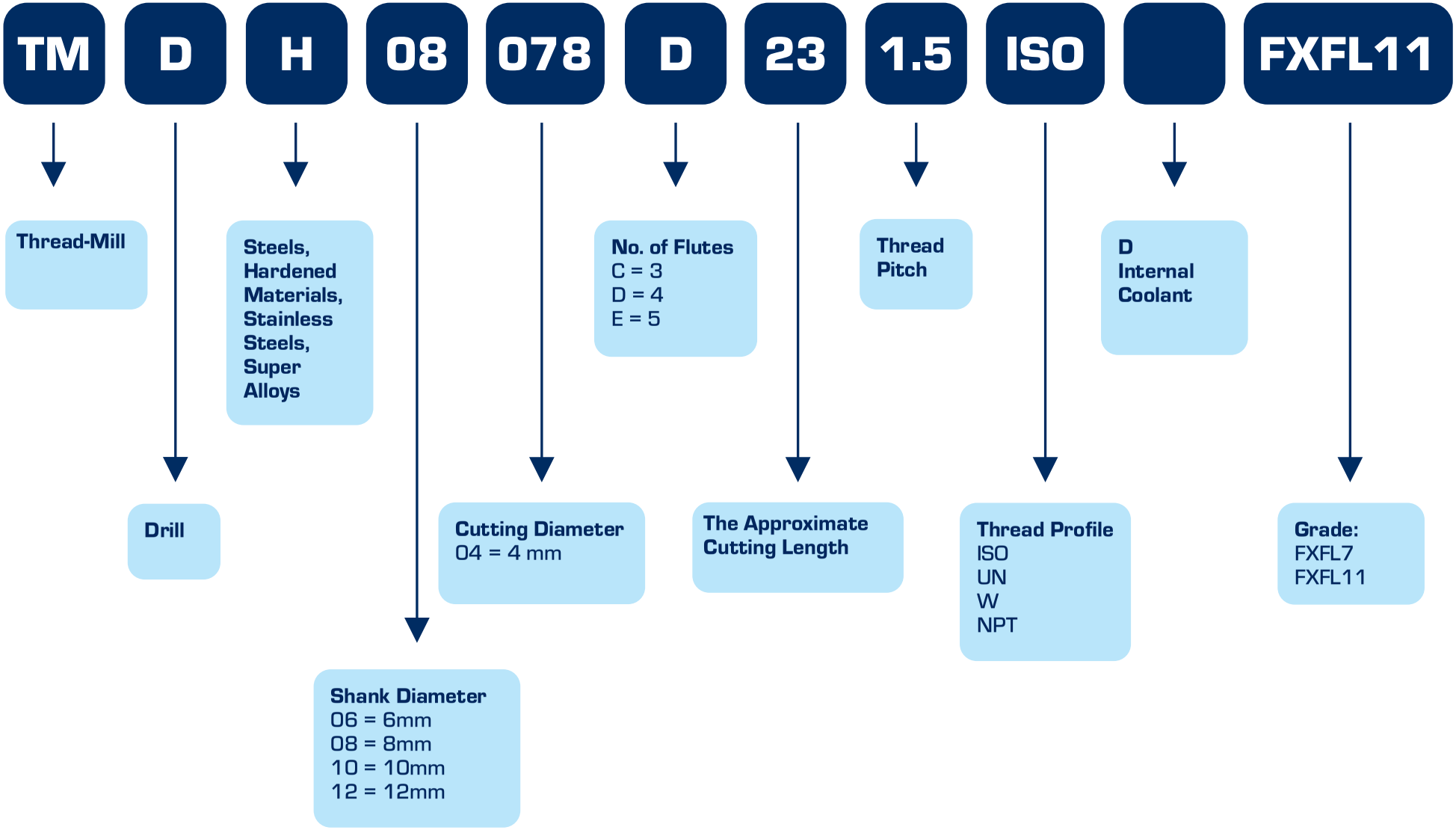
FXFL7 Sub-micron grade with Titanium Aluminum Nitride multi-layer coating (ISO K10-K20).
FXFL11 Ultra - ne Sub-micron grade with advanded PVD triple layer coating (for TMDH)

Advantages

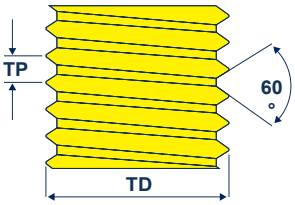
- Cancels the need for drilling the hole.
- Short cycle time and high performance reduces machining costs.
- Suitable for blind and through holes.
- No time lost for tool change, since drilling, chamfering and thread milling are done with one tool.
- Same tool for right-hand or left-hand threads.
- Cuts a wide range of materials.
- Full profile thread

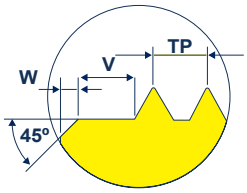
3.2 TMD | Ordering codes

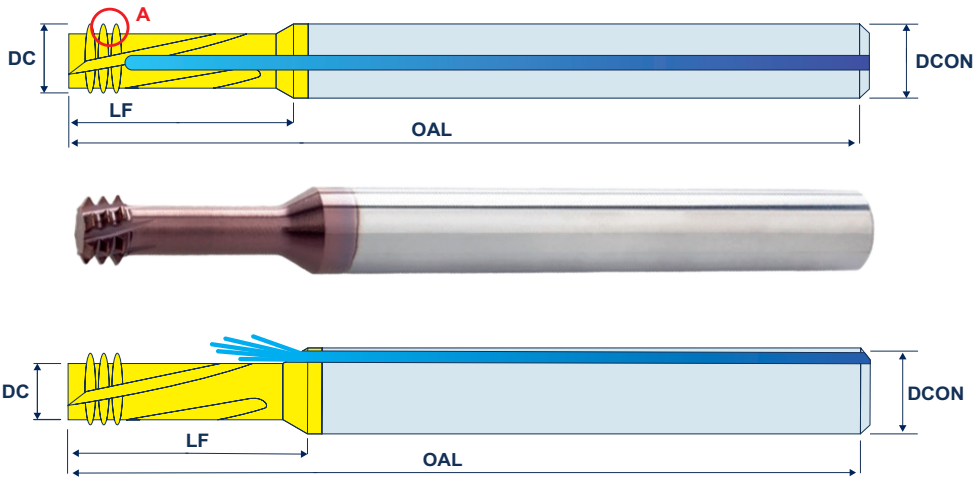
TMD 3 in 1 - *Drill, Thread, Chamfer Ordering Codes



3.3 TMD | ISO with internal coolant bore







Left hand cutting
For CNC code use M04

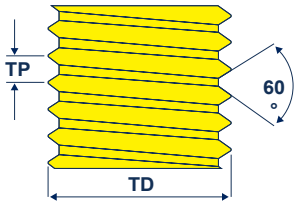
Grade	P	M	K	N	S	H
FXFL7	○	●	●	●	○	

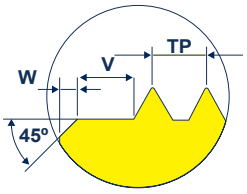
ISO WITH INTERNAL COOLANT BORE

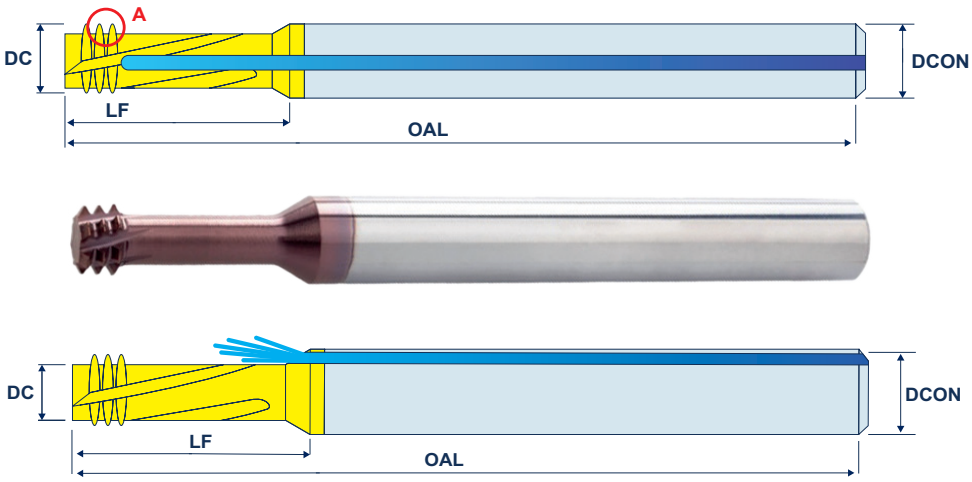
Pitch mm	M Coarse	M Fine	Ordering Code	DCON	DC	No. of Flutes	LF	W	V	OAL	Thread depth
0.5	M3	M3.5,M4	*TMD 06024 C7 0.5 ISO-D	6	2.40	3	7.2	0.2	0.5	58	2 xD1
0.7	M4		*TMD 06032 C11 0.7 ISO-D	6	3.15	3	11.6	0.2	0.7	58	2.5xD1
0.8	M5		*TMD 0604 C14 0.8 ISO-D	6	4.00	3	14.4	0.3	0.8	58	2.5xD1
1.0	M6, M7	M8,M9	TMD 08047 C14 1.0 ISO	8	4.70	3	14.0	0.4	1.0	64	2 xD1
1.0	M6, M7	M8,M9	TMD 08047 C20 1.0 ISO	8	4.70	3	20.4	0.4	1.0	64	3 xD1
1.25	M8,M9	M10,M12	TMD 08061 D18 1.25 ISO	8	6.10	4	18.0	0.5	1.25	64	2 xD1
1.25	M8,M9	M10,M12	TMD 08061 D27 1.25 ISO	8	6.10	4	27.0	0.5	1.25	64	3 xD1
1.5	M10	M13-M15	TMD 08078 D23 1.5 ISO	8	7.80	4	23.0	0.6	1.5	64	2 xD1
1.75	M12		TMD 1009 D26 1.75 ISO	10	9.00	4	26.0	0.6	1.75	73	2 xD1
2.0	M16	M17-M23	TMD 12118 D35 2.0 ISO	12	11.80	4	35.0	0.6	2.0	84	2 xD1

* Tools version-D
Order example: TMD 08047 C14 1.0 ISO FXFL7

3.4 TMD | UN with internal coolant bore







Grade	P	M	K	N	S	H
FXFL7	○	●	●	●	○	

For thread depth up to 2 x D1

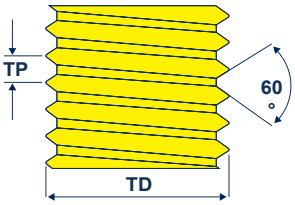
UN WITH INTERNAL COOLANT BORE

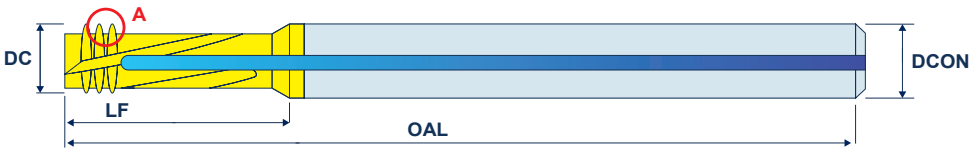
Pitch TPI	UN, UNEF, UNF UNC, UNS	Ordering Code	DCON	DC	No. of Flutes	LF	W	V	OAL	Thread depth
40	4, 5, 6	*TMD 06021 C7 40 UN-D	6	2.10	3	7.0	0.1	0.6	58	2 xD1
36	8	*TMD 06033 C12 36 UN-D	6	3.30	3	12.0	0.2	0.7	58	2.5xD1
32	6	*TMD 06026 C8 32 UN-D	6	2.60	3	8.7	0.2	0.8	58	2 xD1
32	8	*TMD 06032 C12 32 UN-D	6	3.20	3	12.3	0.3	0.8	58	2.5xD1
32	10	*TMD 06038 C14 32 UN-D	6	3.80	3	14.0	0.3	0.8	58	2.5xD1
28	1/4-3/8	TMD 0805 C14 28 UN	8	5.00	3	14.5	0.4	0.9	64	2 xD1
24	10,12	*TMD 06035 C12 24 UN-D	6	3.50	3	12.1	0.3	1.05	58	2 xD1
24	5/16-1/2	TMD 08065 D17 24 UN	8	6.50	4	17.0	0.5	1.05	64	2 xD1
20	1/4-3/8	TMD 08048 C14 20 UN	8	4.80	3	14.0	0.4	1.25	64	2 xD1
18	5/16-7/16	TMD 0806 D17 18 UN	8	6.00	4	17.0	0.5	1.4	64	2 xD1
16	3/8-1/2	TMD 08067 C22 16 UN	8	6.70	3	22.0	0.5	1.6	64	2 xD1
14	7/16	TMD 0808 D26 14 UN	8	8.00	4	26.5	0.6	1.8	64	2 xD1
13	1/2	TMD 1010 D29 13 UN	10	10.00	4	29.8	0.6	2.0	73	2 xD1

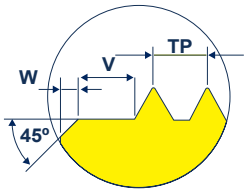
* Tools version-D

Order example: TMD 08047 C14 1.0 ISO FXFL7

3.5 TMD | G (BSP) with internal coolant bore







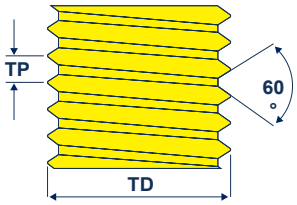
Grade	P	M	K	N	S	H
FXFL7	○	●	●	●	○	

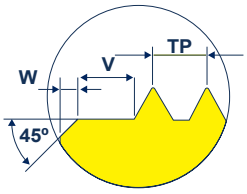
G (BSP) WITH INTERNAL COOLANT BORE

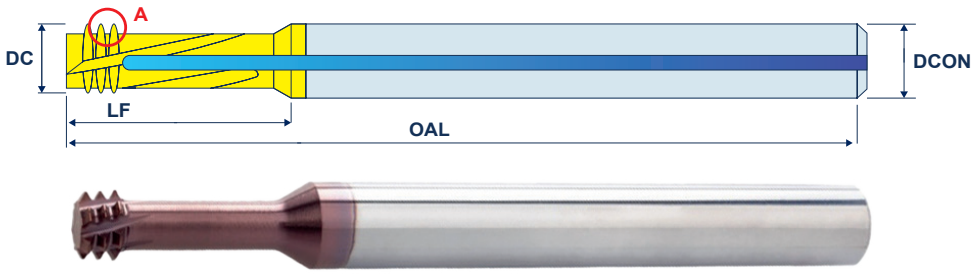
Pitch TPI	Standard	Ordering Code	DCON	DC	No. of Flutes	LF	W	V	OAL	Thread depth
28	G1/16	TMD 0806 D17 28 W	8	236	4	70	024	035	2.5	2xD1
28	G1/8	TMD 08078 D21 28 W	8	307	4	86	035	035	2.5	2xD1
19	G1/4	TMD 12104 D29 19 W	12	409	4	1.17	051	051	3.3	2xD1
19	G3/8	TMD 1414 D36 19 W	14	551	4	1.44	051	051	3.3	2xD1

Order example: TMD 08078 D21 28 W FXFL7

3.6 TMD | NPT with internal coolant bore







Grade	P	M	K	N	S	H
FXFL7	○	●	●	●	○	

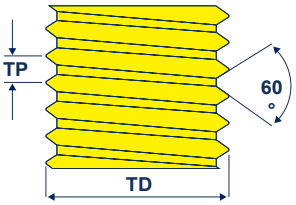
G (BSP) WITH INTERNAL COOLANT BORE

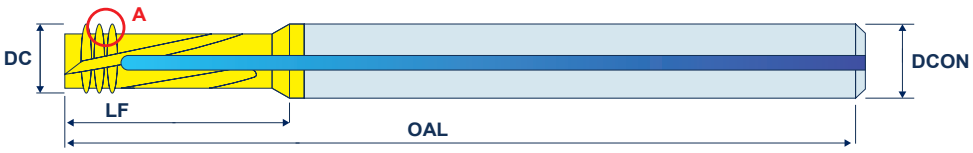
Pitch TPI	Standard	Ordering Code		DCON	DC	No. of Flutes	LF	W	V	OAL
27	1/16	TMD 08057	D11 27 NPT	8	224	4	44	016	035	2.5
27	1/8	TMD 08076	D12 27 NPT	8	299	4	48	016	035	2.5
18	1/4	TMD 1010	D18 18 NPT	10	394	4	72	024	055	2.9
18	3/8	TMD 1212	D19 18 NPT	12	472	4	77	024	055	3.3
14	1/2	TMD 1616	E26 14 NPT	16	630	5	1.06	024	071	3.6

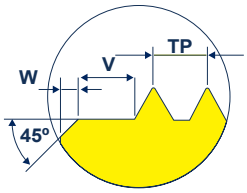
Order example: TMD 1010 D18 18 NPT FXFL7

3.7 TMDH | ISO tools for internal thread

The new TMDH tools expand the range of the existing TMD line providing the ability to cut steels, hardened materials, stainless steels and super alloys.







Left hand cutting
For CNC code use M04

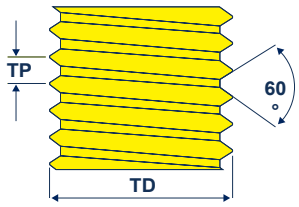
Grade	P	M	K	N	S	H
FXFL11	●	●	○	○	●	

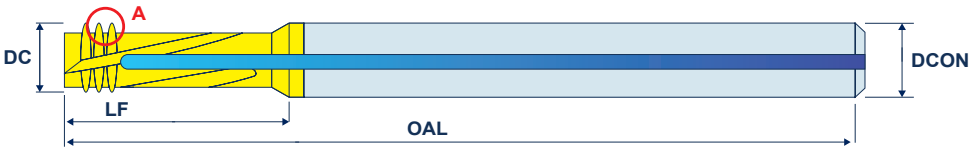
ISO WITH INTERNAL COOLANT BORE

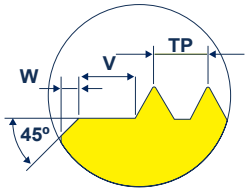
Pitch mm	M Coarse	M Fine	Ordering Code	DCON	DC	No. of Flutes	LF	IF	V	OAL	Thread depth
0.7	M4		TMDH 06032 C11 0.7 ISO	6	3.15	3	11.6	0.2	0.7	58	2.5xD1
0.8	M5		TMDH 0604 C14 0.8 ISO	6	4.00	3	14.4	0.3	0.8	58	2.5xD1
1.0	M6,M7	M8,M9	TMDH 08047 C14 1.0 ISO	8	4.70	3	14.4	0.4	1.0	64	2 xD1
1.25	M8,M9	M10,M12	TMDH 08061 D19 1.25 ISO	8	6.10	4	19.0	0.5	1.25	64	2 xD1
1.5	M10	M13-M15	TMDH 08078 D23 1.5 ISO	8	7.80	4	23.6	0.6	1.5	64	2 xD1
1.75	M12		TMDH 1009 D28 1.75 ISO	10	9.00	4	28.1	0.6	1.75	73	2 xD1
2.0	M16	M17-M23	TMDH 12118 D36 2.0 ISO	12	11.80	4	36.6	0.6	2.0	84	2 xD1

Order example: TMDH 1009 D28 1.75 ISO FXFL11

3.8 TMDH | UN tools for internal thread







Left hand cutting
For CNC code use M04

Grade	P	M	K	N	S	H
FXFL11	●	●	○	○	●	

UN TOOLS FOR INTERNAL THREAD

Pitch TPI	M Coarse	Ordering Code	DCON	DC	D	No. of Flutes	LF	W	V	OAL	Thread depth
40	4, 5, 6	TMDH 06021 C7 40 UN	6	2.10	3	7.0	0.1	0.6	58	2xD1	2.5xD1
32	6	TMDH 06026 C8 32 UN	6	2.60	3	8.7	0.1	0.8	58	2xD1	2.5xD1
28	1/4-3/8	TMDH 0805 C14 28 UN	8	5.00	3	14.9	0.4	0.9	64	2xD1	2 xD1
24	5/16-1/2	TMDH 08065 D18 24 UN	8	6.50	4	18.5	0.5	1.05	64	2xD1	2 xD1
20	1/4-3/8	TMDH 08048 C15 20 UN	8	4.80	3	15.6	0.4	1.25	64	2xD1	2 xD1
18	5/16-7/16	TMDH 0806 D19 18 UN	8	6.00	4	19.2	0.5	1.4	64	2xD1	2 xD1
16	3/8-1/2	TMDH 08067 C22 16 UN	8	6.70	3	22.8	0.5	1.6	64	2xD1	2 xD1
13	1/2	TMDH 10092 C30 13 UN	10	9.20	3	30.0	0.6	2.0	73	2xD1	2 xD1
11	5/8	TMDH 12114 C37 11 UN	12	11.40	3	37.0	0.6	2.3	84	2xD1	2 xD1

Order example: TMDH 08048 C15 20UN FXFL11

3.9 TMD & TMDH | Technical information

TMD type

FXFL7 Sub-Micron Grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials; it should be run at medium to high cutting speeds.

ISO Standard	Material	Cutting Speed (m/min)	Feed mm/tooth Cutting Diameter=D Ø3	Ø4	Ø5	Ø6	Ø8	Ø9	Ø10	Ø12
P	LOW & MEDIUM CARBON STEELS <0.55%C	60 - 120	0.02	0.03	0.03	0.04	0.05	0.05	0.05	0.05
	HIGH CARBON STEELS ≥55%C	60 - 90	0.015	0.02	0.03	0.03	0.04	0.04	0.04	0.05
	ALLOY STEELS, TREATED STEELS	50 - 80	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.04
M	STAINLESS STEEL-FREE CUTTING	70 - 100	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	STAINLESS STEEL-AUSTENITIC	60 - 90	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	CAST STEELS	70 - 90	0.015	0.02	0.02	0.02	0.02	0.02	0.03	0.03
K	CAST IRON	40 - 80	0.02	0.03	0.03	0.04	0.05	0.05	0.05	0.05
N	ALUMINUM ≤12%SI, COPPER	100 - 200	0.02	0.03	0.03	0.04	0.05	0.05	0.05	0.05
	ALUMINUM >12%SI	60 - 140	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	SYNTHETICS , DUROPLASTICS, THERMOPLASTICS	50 - 200	0.03	0.04	0.05	0.05	0.06	0.06	0.06	0.06

TMDH type

FXFL11 Ultra-fine Sub-Micron grade with advanced PVD triple layer coating.

ISO Standard	Material	Cutting Speed (m/min)	Feed mm/tooth Cutting Diameter=D Ø2	Ø3	Ø4	Ø5	Ø6	Ø8	Ø9	Ø10	Ø12
P	LOW & MEDIUM CARBON STEELS <0.55%C	60 - 120	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.05	0.05
	HIGH CARBON STEELS ≥55%C	60 - 90	0.02	0.015	0.02	0.03	0.03	0.04	0.04	0.04	0.05
	ALLOY STEELS, TREATED STEELS	50 - 80	0.02	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.04
M	STAINLESS STEEL-FREE CUTTING	70 - 100	0.02	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	STAINLESS STEEL-AUSTENITIC	60 - 90	0.02	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	CAST STEELS	70 - 90	0.02	0.015	0.02	0.02	0.02	0.02	0.02	0.03	0.03
K	CAST IRON	40 - 80	0.03	0.02	0.03	0.03	0.04	0.05	0.05	0.05	0.05
N	ALUMINUM ≤12%SI, COPPER	100 - 200	0.03	0.02	0.03	0.03	0.04	0.05	0.05	0.05	0.05
	ALUMINUM >12%SI	60 - 140	0.02	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	SYNTHETICS , DUROPLASTICS, THERMOPLASTICS	50 - 200	0.04	0.03	0.04	0.05	0.05	0.06	0.06	0.06	0.06
S	NICKEL ALLOYS, TITANIUM ALLOYS	20 - 40	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.06
H	HARDENED STEEL 45-50 HRC	60-70	0.02	0.02	0.2	0.03	0.04	0.04	0.05	0.05	0.05
	HARDENED STEEL 45-55 HRC	50-60	0.01	0.01	0.01	0.02	0.03	0.03	0.04	0.04	0.04

Combidex
Trademark of Harry Hersbach Tools BV

Nieuwe Waterwegstraat 5
3115 HE Schiedam

+31 (0) 10 204 06 80
www.hhtools.nl
info@hhtools.nl

Made in The Netherlands 02/2024